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TERRY KEPNER'S

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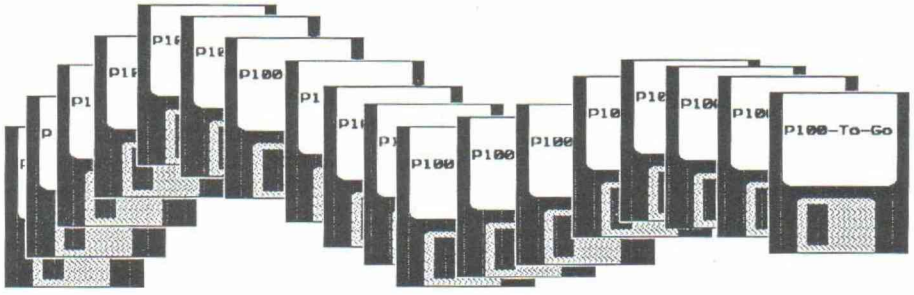

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NOVEMBER 1988

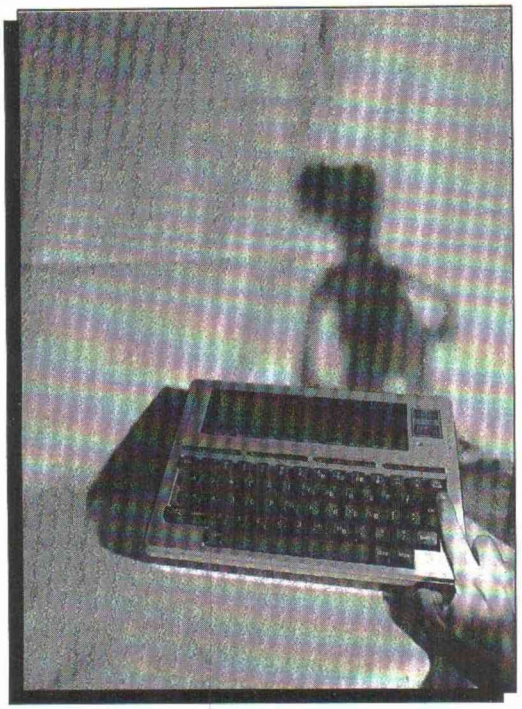

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Photo by Richard Brayshaw. Concept by Mike Nugent. ET courtesy of Paul and Lauren Thebeau.

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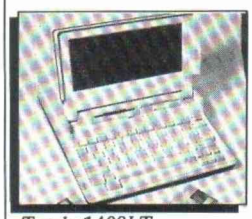
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ROM WITH A VIEW

My "office" is lovely today! I sit on the river bank watching a fresh, gentle breeze propel tiny armadas of leaves across the river's surface. Reflected sunlight dances in the pine boughs overhead to the music of a nearby waterfall, the rushing song muting the sounds of this New England town. The computer on my lap seems somehow right at home here. These words appear against a background green with leaves and blue with September sky reflected in its screen. I've needed a peaceful day like this. I feel more like writing poems than columns. But if I must work, I'm glad the Model 100 enables me to do it here rather than at the office. (Nice place, and wonderful people there, but no butterflies!)

There's much to feel good about. *P100* is coming along nicely. We keep getting more subscribers, more advertisers, and more good articles and ideas. This issue contains two new features: the *Forum*, a place to share hints, tips, and interesting news; and *BASIC Bits*, where Thomas Quindry keeps you posted on the best of the public domain software and shares some hints and tips of his own. Eventually, both will become regular features. Meantime, we plan to offer *BASIC Bits* bi-monthly and *Forum* whenever space permits.

The *Portable BBS* is really shaping up. Traffic has increased greatly, and feedback has been overwhelmingly favorable. We're glad you like it!

I chose to scrap a scheduled article this month in order to take care of two things. First, it's about time we run one of those beginners articles I promised. Second, we'd like to help more people take advantage of the *Portable BBS* and other on-line services. So I've whipped up a rather silly but, I hope, informative tutorial to help beginners with *TELCOM*. I dedicate this one to Louise Legeza. I hope she likes it.

You may have noticed we're spacing the print slightly tighter. It lets us fit almost 20 percent more into each issue, giving you 20 percent more for your money. We've considered using uncoated paper to eliminate glare, for easier reading, especially when typing in programs. If you'd like it, and if we can afford it, we'll do it.

I did a dumb thing last issue. David Rowell offered readers a disk of *FORTH* programs (October '88, I/O), but I left out his complete address. You can write to him at 3961 Cherry Valley Turnpike; Marietta, NY 13110. The programs are now on the *PBBS* too, if you prefer to download them.

Late bulletin: When a reader inquired about solutions to his Tandy 200's poor screen contrast, I remembered that Axonix used to advertise backlighting modifications for notebook computers. I called them and was surprised to learn that they still do this. They can handle 100/102, 200, 600, NEC 8201, and others. We'll find out more, and I'll try to arrange a review. Meantime, you can contact them for more info: Axonix; 2257 S. 1100 E. Salt Lake City, UT 84106; tel. 801-466-9797.

A final thought: Although ads are picking up, some once-major players are still absent. Thus, there's a whole new group of readers who never heard of them and still need the type of products they sell. Without competition from the majors, the field is wide open for the "little guy" with a good idea. Who'll write the next Lucid? Some readers are saying to themselves, "What's Lucid?" (There's your market!)

Well, I guess it's time to head back to the office. Nice talking to you, and I hope it's this nice a day when we do it again. And by all means, let's do it again!

- Nuge

Toolbox

Manuscripts were typed into Microsoft Word 3.0 on a Tandy 1400 LT, where they were edited, spell-checked, and had basic format instructions inserted. From there they were loaded into a Tandy 4000 (80386 CPU, Tandy EGA Monitor, Tandy LP-1000 LaserPrinter) desktop computer and placed into Aldus' IBM PageMaker 2.0a. There they were put into a rough approximation of the magazine's final appearance. Here, pull quotes are placed, headlines, intros, and bylines are sized and positioned, and advertisements positioned.

Next, the magazine was ported over to our Art Director's Macintosh Plus, using the 1400 LT and Mac-link. She then went over the publication using Aldus Macintosh PageMaker 2.0a, making final design decisions on photo, figure, and listing sizes and placements. She precisely placed the text and added all the little things that go into making a nice looking publication.

Page previews were output from her Laserprinter. When everyone was satisfied with the appearance, the Macintosh disk was sent to Colorite Corp. in Wisconsin for final output directly onto photographic paper. The finished magazine was then delivered to the printer, who printed it, labeled it, and mailed it to you.

TERRY KEPNER'S **portable 100**

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Bonanza!

The September '88 issue was a mini-bonanza, with the teaching and study programs, the welcome news that now all the programs of each issue are available on disk (my order is in a separate envelope to simplify handling) and the handy *HOTKEY* program (to which I look forward but will wait for a pre-typed disk version before installing) and other worthwhile items too numerous to reiterate.

Yes, I had noticed the "date bug" but thought it was unique to my M100. It's nice to know that my laptop is "normal." The problem only manifested itself, it seems, after using *TELCOM*, especially at higher than 2400 baud. Here's the warm start (IPL) program, *DATCHK.BA*, I installed after I'd mailed a few letters before noticing they had headers dated a year in the future:

```
10 IF RIGHT$ (DATE$,2) <> "88"
THEN BEEP : PRINT "SET YEAR-
DATE-STRING!"
20 IF RIGHT$ (DATE$,2) = "88" THEN
MENU ELSE GOTO 10
```

The 4-point guideline you printed for getting in the market with laptop programs is good advice worth trying. I hope many readers with useful programs give it a try. Here's hoping, also, that you follow that good advice and build *Portable 100* into what it has the potential to be and that Mike Nugent gets enough sleep to maintain his sense of humor, keep his talents sharp, and remember to feed his parakeet.

John S. Neufeldt
Tucson, AZ

Thanks, John! Mind if we frame your letter? You're right about the date bug; it's usually caused by TELCOM *at speeds above 1200 baud. Besides* HOTKEY *and your* DATCHK *program, many other fixes exist and can be found on the big information services (i.e., CompuServe, GEnie, Source). To my knowledge, the bug only appears in the 100. Tandy solved it on the 102 by omitting the ROM code that updates the year. So each year, 102 types must reset the date via the* DATE$ *command.*

By the way, fellow reader R.M. Organ responded to your ribbon re-inking problem with a possible solution. See DEFUSR.

As for the parakeet, I'm afraid he's no longer with us. He passed away soon after I began lining the bottom of his cage with back issues of PICO.

-MN

SLOTS CORRECTIONS?

I am one of your many readers who waited anxiously for the July, 1988 issue of *Portable 100* to see if the corrections for *The Slot Machine Game* were to be published.

I am grateful for the corrections given by the author in his letter, however, am not as agreeable as two of your subscribers appear to be to purchasing any more discs or tapes from Mr. Sherman. I assume your corporation has already paid Mr. Sherman quite adequately, for the printing rights to his program and am therefore asking you for a corrected printout of *The Slot Machine Game.* I appreciate your concern over accuracy in reproducing programs in your magazine and look forward to your September issue with great interest.

> ***I had noticed the "date bug" but thought it was unique to my Model 100.***

I look forward to hearing from you at your earliest convenience and to receiving the corrected printout of the game.

J.L. Miner
Vancouver, WA

I'm not sure I understand, J.L. The July issue contains the necessary corrections. Just make 'em, using BASIC's EDIT mode, and re-save the game to tape, disk, or whatever. If you haven't yet typed in the listing, then you need only to type it in, incorporating the published corrections. If you prefer not to type at all, it's available for downloading from the Portable BBS (see masthead for phone number and TELCOM stats) and on P100-To-Go disks. On the chance that you're just confused about what the actual changes are, I've summarized them here:

Line 610 - change (B1-B)/ABS(W1-B) to (B1-B)/ABS(B1-B)
Line 650 - change USING"$$#R#" to USING"$$###"
The line following line 1315 should be 1320, not {20

Though it's far easier to make the above changes than to retype a whole program, if you still feel you need a corrected listing, drop me a SASE (stomped, self-abused envelope), and I'll get one out to you, post haste. How'zat?

-MN

SHORT AND SWEET

Shauna, thanks for sending the back issues! I'm devouring them. You are a real pal.

Please tell Mike Nugent that my Gold Card arrived by Federal Express next day, that Steve Ambrose was most helpful and that, so far, it works wonderfully well. I'm delighted.

Don Sider
West Palm Beach, FL

Shauna is our very own top-notch circulation manager. Don Sider is the managing editor of a sharp-looking Florida real estate magazine. And he does it all on his Model 100! We've sent two "editorial representatives" (i.e., thugs) to West Palm Beach to persuade Mr. Sider to write an article telling us about it. We'll keep you posted.

-MN

REVIEW OF *ULTRASCREEN*

I read the letter in your July 1988 issue about my review of *Ultrascreen*. Of course, I'd be distressed if my review misled anyone, even though I was careful to specify the conditions under which I tested the program and its major drawbacks—including most of those the letter writer, Kenn Cust, also noticed. (About speed, for example, I made it clear that *Ultrascreen* is too slow for fast typists, especially when inserting text, and mentioned the little program that comes with it, called *ENTRY*, which enables one to enter text quickly in sixty columns.)

As for Cust's complaint that *Ultrascreen* won't work acceptably with *Super ROM* — well, I don't have *Super ROM*, so I couldn't test it; but I assume he's correct, and I'm sorry to hear that *Ultrascreen* doesn't work with it. However, this is partly a problem in point of view, as one could just as well complain that *Super ROM* won't work with *Ultrascreen*. Or that *Super ROM* lacks the sixty-column display needed for sensible formatting of text and the near-double number of words visible on the screen. If I had to choose between *Super ROM*'s features and *Ultrascreen's* display size, I'd take the latter. Of course, the computer I use for most of my serious writing, an Amiga running *WordPerfect* and a utility called *MoreRows*, gives me a display of 80 columns and 54 lines—so I may feel more cramped than a writer who is used to the standard M100 screen.

In any event, it's good that Cust has pointed out the *Ultrascreen-Super ROM* incompatibility (although I might wish he'd done so somewhat less vehemently). I'll add, however, that if one were to recommend expensive ROMs for the Model 100, *Ultimate ROM II* would probably be a better investment than *Super ROM*, as I think it does provide a means to see more than 40 columns. (By the way, a review comparing those two ROMs would be helpful to many Model 100/102 owners.)

You might want to pass this letter on to Kenn Cust, either by mail or in print.

Donald Maxwell
Richmond, VA

The View80 *utility of* Ultimate ROM II *allows screen widths from 10 to 80 characters. Since only 60 characters can be displayed on the screen at once, any width setting over 60 gives a scrollable 60-character "window" on up to 80 columns.* View80 *shows 8 lines per screen, as opposed to* Ultrascreen's *10 lines.*

Both Ultimate ROM *and* Super ROM *have been reviewed and compared in various past issues of* Portable 100.

-MN

GRADING THE GRADER

The team of Steffens and Steffens would like to thank your staff for all of the assistance given to introduce *Grade Management System*. We are not business oriented; however we recognize good service when it is given.

We are working to improve our manual, as it was given the most negative criticism by your reviewer. We feel Mr. Klein did his best to show fairness on this issue.

We were hoping to see a review with more comment made about *GMS*'s program features. Rather much time was spent on an "ideal grade program." As we suspected, most of our customers are PDD1 users. The 100K bytes of storage capacity are not enough for yearly disk storage of data with an "on-line" grade management system. The notebook computer itself hasn't enough K bytes to store data for half a school quarter, "on line." The future holds promise.

A big thanks to Mr. Robinson for his personal comment in the Sept. '88 "ROM with a View." The process for starting a small business is as easy as calling the Library of Congress, Copyright Office. With fifteen dollars, and a simple information Form TX, programmers can protect their creation. Mr. Robinson is correct; it takes skill and a bit of guts. I might add to that it also takes a thick skin. Few of us can be an expert at all areas. Rushed work creates mistakes, like the proofreading of the manual. Fast or slow, reaching for the brass ring is better than not trying. We learn by our mistakes, what we already know and do, is called practice.

It takes skill and a bit of guts. It also takes a thick skin.

Gary Steffens
Software by Steffens
Little Chute, WI

I hope that Mr. Steffens or the readers of my review do not misunderstand my intent in my criticism of the manual for the Grade Management System. *Even the best of programs—among which I believe the* GMS *can be included—can suffer if users get confused at a crucial point in learning a program and set it aside, which I nearly did. In my criticism of the documentation, for one, I hoped to show that, despite some confusing points in the manual, the program is nevertheless well worth purchasing.*

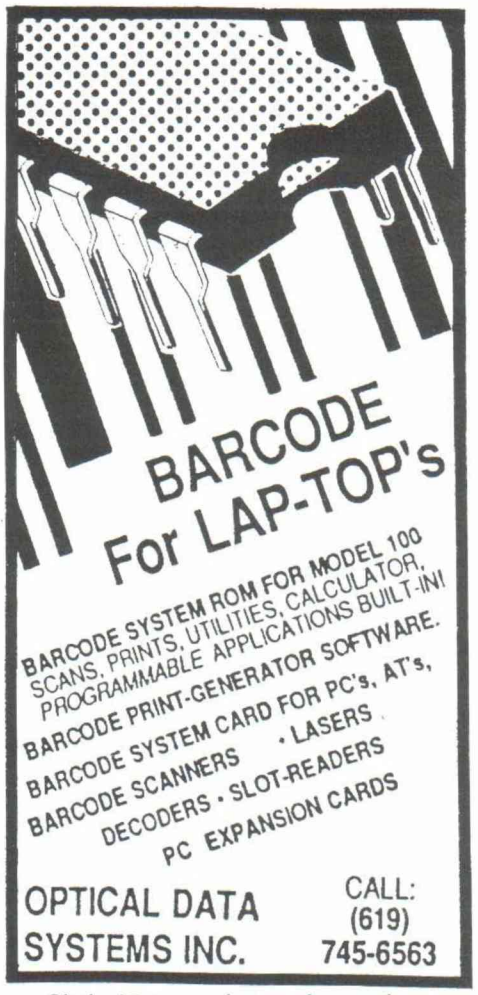
My contact with Mr. Steffens suggests that he will work hard to support his product, which means that he will undoubtedly produce a clearer manual as well as enhanced versions of the program (he has already improved the version I reviewed).

I realize that designing the GMS *for the PDD1 was a necessary choice from a business standpoint. But I was also hoping that Software by Steffens' would be able to take advantage of such devices as the PDD2, the Booster Pak, and the Gold Card now on the market, and explore the possibilities for a teacher's dream program. Indeed the future does hold promise. Forgive me if I didn't address many of the useful features of the* GMS. *As I mentioned teachers are passionate about their grading systems.*

Finally, the Steffens team should be particularly praised for their ability to produce a fine program without the backing of a large corporation. We should all admire the courage and determination of such entrepreneurs—and we should support their businesses. Good luck, Mr. Steffens.

-DK

We welcome all letters from our readers, whether critical or complimentary. We print as many letters as space permits (some are edited for space considerations). Address your correspondence to: Portable 100, I/O Dept., P.O. Box 428, Peterborough, NH 03458-0428.



Circle 15 on reader service card.

A Kyotronic 85 Model 100!

As the owner of one TRS-80 Model 100 computer and two Kyotronic 85 computers, I naturally wanted complete software and hardware compatibility among all three systems (except, of course, for the absence of the built-in modem and the bar code reader interface in the Kyo-85). This is to advise other Kyo-85 owners that the Model 100's LH-535618 (CMOS Masked ROM), listed in the *TRS-80 Model 100 Technical Reference Manual* as M12, RS Part Number AMX-5821, works perfectly in the Kyo-85, and thus gives the Kyo-85 complete software compatibility with the Model 100. Presumably the chip is available as a "replacement" part through Radio Shack dealers. I now use my Kyo-85's with the D/VI and/or the PDD-2, and Cleuseau/ROM2 option ROM's, with no problems. Incidentally, let me recommend *Cleuseau* plus *Text Power* as making one of the nicest word processing systems I have yet seen for Model 100-type computers. You may need either the *Model 100 Technical Reference Manual*, the Kyotronic KC-85 Service Manual, or someone with "know-how," for help on opening the case and replacing the ROM.

MODEL 100/102 HACKERS:

If you are into EPROM burning, you probably have been advised that the masked ROM in the Model 100 has a pinout which is compatible with the 27C256 EPROM. Option EPROM's for the Model 100 come in adaptor harnesses to transpose the pins to correct for the differences. The differences are in the high order address lines, but the data lines have the same pinout. I wanted to make a few minor modifications in the Model 100 firmware, so I removed the chip, read it into a Prommer as if it were a 27256, found the bytes to change, made the mods, and burned the modified data into a 27C256. The 27C256 worked perfectly in the Model 100. Rather than junk the old Model 100 ROM, I inserted it into one of my Kyotronic 85's, where it works beautifully. It seems to me that third party vendors supplying EPROM firmware for the Model 100 in adaptor harnesses could save the cost and troubles associated with the harness by permuting the "raw" object code to conform to the interchanged high order address lines before burning their 27C256's.

Dr. H.R. Luxenberg
Chico, CA

Rather than junk the old Model 100 ROM, I inserted it into my Kyotronic 85, where it works beautifully.

3.5" PDD AND THE D/VI

This is the only complete procedure to exchange files between D/V interface and portable disk drive. (The D/V and disk drive are connected to a 100/102/200 at the same time.)

A. From the D/V to the PDD:

1. *CTRL-BREAK-RESET* reinitialize and boot from the D/V interface.
2. *LOAD "0:FILENAME"* load the file to exchange from the D/V.
3. *SAVE "FILENAME"* save the file in RAM.
4. Type the following in order to clear memory and eliminate the driver of D/V: *POKE 62966,201: CALL 32454: CLEAR 256,MAXRAM*
5. Execute *IPL.BA* from the Portable Disk Drive.
6. Change the disk and insert destination disk in the PDD.
7. Execute *FLOPPY.CO*.
8. *SAVE* (*F3*) your filename onto PDD.

B. From the PDD to the D/V Interface:

1. *CTRL-BREAK-RESET*
2. Execute *IPL.BA*
3. Execute *FLOPPY.CO*
4. Load the files to transfer from the portable by changing the disk.
5. Type the following for eliminating the driver of the PDD.
   POKE 64218,243:POKE 64219,127
   POKE 64220,243:POKE 64221,127
   POKE 62297, 201: CLEAR 256, 62960
6. *RESET* 100/102 for loading of D/V interface.
7. Load the program from memory.
8. *SAVE "0:FILENAME"* to save it onto the D/V interface.

The points *A1* and *B1* are mandatory, the disk *BASIC* can't be loaded again after it is deleted by the procedure *A4*. A cold start is required.

HELP! CAN ANY READER HELP US LOCATE A 100/200 BAR CODE WAND? WE CAN'T FIND ONE IN THE UNITED KINGDOM.

Communications News
Editor Peter J. Turner
51 Weyland Road
Witnesham, Ipswich
Suffolk IP6 9ET
England
❑

Forum is where you can show off your expertise and help your fellow readers! Address your tips, hints, and techniques to: Portable 100, Forum Dept., P.O. Box 428, Peterborough, NH 03458-0428.

GETTING WIRED!

Your first time out with TELCOM.

by Mike Nugent

YA CAN'T HURT NOTHIN'! Honest. Just remember that. Then all the pressure's off, and you can relax and have fun playing around with *TELCOM*. Nothing's gonna break, and nobody's gonna get mad. Okay?

OKAY, I'M RELAXED

Good. Now let's start by talking about what *TELCOM* is. Quite simply, *TELCOM* is a program that lets computers talk to each other and swap information. The information could be in the form of files stored in the computer (expense reports, maybe), or it could be something you type at your keyboard, perhaps a sick joke, and someone miles away reads it on his screen and laughs and types back that you're an idiot.

For business (sending reports from the field), for research (receiving information from a database), or just good, clean fun (calling someone an idiot from a safe distance in another time zone), *TELCOM* makes it possible.

HOW DOES IT WORK?

Who cares?

THE *PORTABLE BBS*

With those basics out of the way, we're ready for some of that fun I mentioned. So we're going on a field trip to the *Portable Bulletin Board System*. You'll need the following equipment:

1) A notebook computer with built-in modem
2) A modem cable or acoustic coupler
3) A handgun

Notice that the list doesn't mention an external modem. This is our first time out; you can get fancy later. Also notice that I didn't mention making backups of important files. It's extremely unlikely that you'll do anything harmful to your files. But if you'll feel more comfortable (and that's the whole point), by all means, make backups. Field trips are more fun when you don't have to bring your luggage. For maximum enjoyment, cold start your computer after making the backups. Just hold down the *CTRL* and *BREAK/PAUSE* keys while pressing the little square reset button at the back of the computer. This completely empties your computer of all RAM files. In the words of a Bob Dylan song, "When you got nothin', you got nothin' to lose!" (Hint: it also leaves more room for downloading.)

For maximum enjoyment, cold start your computer.

GETTING WIRED

The first step is to connect your computer to the telephone. That's covered fairly clearly in your owner's manual, so I won't go into it here. Go ahead and hook it up.

On the Model 100/102, set the *ANS/ORIG* switch (on the left side of the computer) to ORIG. The Tandy 200 has no such switch. I'll explain later.

SETTING STATS

So much for hardware. Now we'll set up the software. Put the cursor over *TELCOM* on the main menu and press *ENTER*. You'll see a strange line of numbers and letters in the upper left corner. Whoa! Scary stuff! Let's talk about this.

That weird stuff is the *TELCOM* "stats." (Huh?) It indicates the "language" your computer will speak when talking to another computer. When two computers speak the same language, they understand each other. When they don't—chaos.

You needn't know the meaning of stat settings, only how to match yours to the other computer. The *Portable BBS* stats (shown in the magazine's masthead) are *300/1200,8,None,1*. On your machine, this would be:

M = modem (300 baud)
8 = word length (8)
N = parity (none)
1 = stop bits (1)

Your complete stats contain additional settings. For now, just use what I show you. To set your stats, press *F3*; then type:

M8N1E,10 (for M100/102)
M8N1ENN,O,10 (for T200)

and press *ENTER*. Your computer now speaks *"Portable BBS."*

By the way, the letter *O* in the Tandy 200 stats is used in place of an *ANS/ORIG* switch like the Model 100 has.

LOGGING ON

We're ready to talk to the *PBBS*. Now, don't panic. If I see anyone start to panic, I'll just shut this article down right here and now, and we'll use the remaining space to run an ad or something. Just relax and have fun. Make all the mistakes you want. Ya can't hurt nothin'!

To call the *PBBS*, press *F2* (Call) and

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Little Chute, WI 54140
Circle 29 on reader service card.

type the *PBBS* phone number just as you would dial it, followed by <> (like this: *1-603-924-9770<>*), and press *ENTER*. The hyphens are optional, but the angle brackets (<>) are required.

The computer displays each digit as it dials. Then you'll hear ringing or a busy signal. The sounds aren't clear, but you can definitely tell the busy signal, a fast, repeating raspy sound. If you get that, press *SHIFT/BREAK* to hang up, and try dialing again in a few minutes.

If it's not busy, you'll hear more raspy noises as the computers connect. When the noise stops, your function key labels change. Look at the label for the *F4* key. It should say *Full*. If it says *Half*, press *F4* to change it to *Full*.

WELCOME ABOARD!

You've done it! You're connected and ready to log on. The *PBBS* will ask for your name and where you're calling from. Just type 'em in, pressing *ENTER* after each one. Use the backspace key if you make a mistake. Don't be fooled—it doesn't erase on your screen, but it is working. And take your time; *PBBS* is very patient.

When *PBBS* sees you're a new user, it asks questions about your computer, so it can talk to it better. First it asks for your terminal (screen) width. Type *40* and press *ENTER*. Then it lists some computers and asks which one you have. Press *A* for Model 100/200 (no need to press *ENTER*). Next it displays a list of other settings, then asks if you want to change any. You don't—press *N*. Finally, it lets you choose a personal password. (Write it down, too, so you'll remember *exactly* how to type it the next time you log on!) Then you're done signing up. Now that *PBBS* knows you, you won't have to do it again.

Now you'll see the normal log-on information that's displayed each time someone logs on. Bulletins appear next to inform users of new files, special reminders, news, etc. Just my way of dropping you a note.

First-time users will see some information telling a little about the *PBBS* and how to use it.

Finally, the system checks for messages addressed to you (as a new user, there won't be any) and then takes you to the *PBBS* main menu.

CRUISING

The main menu is a starting point for traveling to various parts of the *PBBS*. Simply press a letter to make your choice. One choice usually leads to another menu (and perhaps another). It's a bit like being on a ship. Starting at the main deck, you can go lower and lower, one deck at a time, until you get where you're going.

Any time you want to back up (toward the main deck), press *ESC*, - (minus), or *P* to return to the previous menu. All three keys work alike; use any one.

GO NUTS!

I won't confuse you by discussing all the different choices you can make. *PBBS* is very friendly. Just wander around, poke and snoop. Each time you log on, you have half an hour to look around,

The ultimate panic button—just hang up!

have fun, go nuts. Menus take you from one place to another. Get lost if you want to. You can always get back to the main menu by pressing one of the "back-up" keys at each menu until you get to the top. And of course, there's always the ultimate panic button—just hang up! You won't hurt a thing.

LOGGING OFF

To end your session, return to the *PBBS* main menu and press a "back-up" key. Then if you want to leave a message to the *sysop* (system operator, that's me), press *Y* and leave your message. Otherwise, press *N*, and you'll be told to hang up. To hang up, press *F8*, then *Y*, and you're out of *TELCOM*'s "terminal" mode (you've hung up). You can press *F8* again to exit *TELCOM* completely and return to your computer's main menu.

HELPFUL HINTS

You know enough now to get on the *PBBS* and see what's there. It'll soon become second nature. A couple of tricks will help as you learn your way around.

First, any time you feel it's going too fast, press *P* to pause the action, *ENTER* to continue. To stop something in the middle (a listing, for instance) and return to the menu you came from, press *S*. And *F1* displays the previous screenful of information, showing you what's already scrolled off your screen. Press it again to return to the present screen. (If the scrolling has stopped, hold down the *CTRL* key and press *Q*.) If you have a printer connected, pressing *F5* turns *Echo* on, and everything crossing the screen is copied to your printer. Pressing *F5* again turns *Echo* off.

DOWNLOADING

Probably the most valuable key is *F2* (Down). It copies everything that crosses your screen into a *.DO* file in your computer. This is a normal text file, just like *NOTE.DO*. Later, you can go into the *.DO* file and look at everything that crossed your screen. To open such a "capture" file, press *F2*; then type any legal file name, up to six characters, and press *ENTER*. (The computer adds a *.DO* extension automatically.) Thereafter, everything appearing on your screen also gets copied into the capture file until you press *F2* again, which stops the download and closes the file.

Hint: You could open a capture file when you first log on and then leave it open. When you log off, you'll have a complete record of the entire session. You can study it at your leisure and pick up on things you might have missed. See your owner's manual for more information on using *F2* in *TELCOM*.

YOU'VE DONE IT!

Congratulations! You've just telecommunicated! Didn't even hurt, did it? The main thing is you waded in and got your feet wet. You'll probably have no trouble learning more advanced stuff. We'll talk about that next time around, and maybe I'll leave a sick joke on the *PBBS* for you to find. Meanwhile, why not try leaving me a message (addressed to SYSOP) to let me know you made it? See you there!

THE HANDGUN?

Oh, yeah, that's just in case you call someone an idiot, and it turns out he lives near enough to drop by!

❑

The Tandy 600 Connection

GEnie hosts a wealth of programs for your Tandy 600.

by David Dunn Thomas

Perhaps you have owned your Tandy 600 for some time. But now you've mastered most of the precious little software you could find for this machine, and you're looking for a better selection of programs to beef up your system. Or perhaps you want to connect with other 600 users to mine their good ideas. One good way to accomplish both is through bulletin board services (BBS's) such as the General Electric Network for Information Exchange (GEnie).

To connect to BBS's or other computers, however, you must use a modem, driven by a communications program such as *TELCOM*, through your phone lines. Unfortunately, without doubt, the Tandy 600 owner's manual leaves much to be desired, especially when it explains the use of the *TELCOM* program. For example, most owners soon discover that typing *PHONEBOOK* as the filename required on page 163 of the manual won't work! *PHONBOOK* is the filename to use, though—to make it more complex—that name isn't mandatory as long as you tell the *OPTIONS* module of the *TELCOM* program what "phonebook" you are using.

Yet at the same time, many Tandy 600 owners don't know that they can dial a number and connect to another computer without using a phonebook file at all. The procedure for doing so is outlined below. This procedure works fine whether a *PHONBOOK.FIL* exists or not.

You can further use this example to connect to GEnie, where you as a Tandy 600 owner will be delighted to find over eighty files for your use (Table 1).

Before downloading with *XMODEM*, you should select *<M>odify* and switch to 8 bits and no parity. You can do this either on-line or when you set up a *script* that you can use regularly after becoming a GEnie subscriber.

HOW TO CONNECT WITH GENIE

As a first step, you have to set up your computer and modem driver program. Here's how to set up *TELCOM* so that you can connect with GEnie.

- From the System Manager, select *TELCOM* with the cursor and press *ENTER*.
- At the command line, select *<O>ptions*.
- Moving through the *OPTIONS* fields with the *TAB* key, make the following options your defaults:

capture to:	*SESSION.TXT*
phonebook:	*PHONBOOK*
dialing prefix:	[blank]
area code:	[blank]
call retries:	*0*
dialing type:	*Tone*
speed:	*Slow*
wait for tone:	*2*
review text lines:	*30*
disconnect after:	*10*

- Press *ENTER* to record options and to return to the command line.
- Select *<M>odify* and make the following your defaults:

baud rate:	300
stop bits:	1
word length:	7

No.	File Name	Bytes	Description
1898	*BDVIEW.600*	2520	Graphic display of memorable photos
1878	*TIMECARD.BAS*	1260	Total your employee timecards
1871	*LJOUS.600*	1260	Generates delightful graphic pattern
1776	*BHO.600*	10080	Binary/Hex/Octal/Decimal converter
1762	*BROKER.600*	12600	Investment simulation—Bull? Bear?
1761	*LSTAT.600*	5040	Lotto statistics analysis
1760	*PUMP.600*	2520	Hydraulic ram pump simulation
1759	*RANDIST.600*	2520	Graphing random distribution
1735	*DRINKING.600*	3780	Blood alcohol level estimator
1734	*NORAD.600*	8820	Be the accomplished hacker!
1684	*STARS.600*	5040	Calculate star/planet positions
1683	*MOON.600*	7560	Calculate positions of sun & moon
1518	*SLOT.600*	3780	Silver dollar slot machine: Tandy 600
1502	*DRILLS.600*	11340	Arithmetic and spelling drills
1400	*INSTR.600*	2520	Simulating *INSTR()* on the Tandy 600
1082	*ESC.TXT* (DOC)	6300	Printer *CTRL* codes, PF keys
1048	*DECISION.600*	11340	Assistance in decision making.
1047	*DECISION.DOC*	2520	Guidance for decision making ....
996	*CITY.BAS*	2520	Entrancing graphics amusement
995	*WRITER.600*	10080	Analyzes writing mechanics
956	*CUTTHROATPOKER*	15120	Pot limit! Play an exiting game!
955	*JACKPOTPOKER*	16380	Play/watch seven-handed poker
954	*MINDREAD.600*	2520	Mind reading in mathematical vein
953	*CIRCUITMATHEMATICS*	3780	Calculate six electricity values
952	*CODER.600*	2520	Encrypt/decode ASCII files
951	*BUSINESS.600*	10080	Twenty business category programs
928	*DMP2100P.WRD*	2520	Printer code embedding for DMP-2100P
927	*PRNCODES.BAS*	3780	Setting up printer codes in *WORD*

Table 1. A partial listing of Library 9 of the GEnie Laptops RoundTable—Tandy 600 files.

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Circle 37 on reader service card

926	*CHECKS.PLN*	10080	PLAN template for Tandy 600/ZP-150
922	*BROWSE.600*	1260	Read ASCII files from *BASIC*
916	*FINANCIALCOMPUTATIONS*	5040	Finance program adapted: Tandy 600
915	*FLYSWAT.600*	5040	Swat the fly! [IF you can!]
914	*TREND ANALYSIS PLOTTER*	3780	Utility plotter, 80/132 column printer
913	*SEARCH.600*	2520	Searches for strings in programs
867	*LISTER.600*	1260	Listing of *BASIC* programs from ASCII
866	*MAKER.600*	2520	Generates *DATA* statements for *BASIC*
856	*NETWORK.600*	8820	How to make it big in broadcasting
848	*RECEIPTDOCUMENTATION*	2520	*RECEIPT.600* and *RECEET.100* guidance
847	*RECEIPT.600*	3780	Cash register receipt generator
846	*INTERMOD.600*	2520	Compute RF intermodulations
839	*NCCLSPRE.BAS*	2520	Precision program adapted for T-600
838	*REGRESS.600*	5040	Regression analysis; printer support
836	*AMORT.BAS*	5040	Screen/printer amortization output
826	*MATRIX.600*	3780	Solves simultaneous equations
825	*MATH.600*	22680	Twenty-six advanced math modules
819	*STAT.BAS*	16380	Statistics, regression, distribution
816	*BARTENDR.600*	6300	Bartender's mixing guide
811	*RETIRE.600*	2520	Retirement requirements program
810	*IRA.600*	2520	IRA projection program
714	*UTILITY.ARC*	16380	Binary ARChive of files 704-711
713	*WOOD.DOC*	5040	Instructions for *WOOD.600* use
712	*WOOD.600*	10080	Economical cutting of wood/cloth (?)
711	*INTEST.600*	3780	Call Tandy 600's software interrupts
710	*GETREG.600*	1260	Read registers in the Tandy 600
709	*CALLTT.600*	2520	*VARPTR* command for Tandy 600
708	*PEEK.600*	2520	*PEEK* command for Tandy 600
707	*UTILITY.DOC*	10080	Instructions for use of *UTILITY.LIB*
706	*UTILITY.LIB*	3780	*PEEK, POKE, VARPTR* for Tandy 600
705	*MAKLIB.DOC*	2520	Instructions for "make library" file
704	*MAKLIB.TXT*	5040	Source for modifying *DBCALLS.LIB*
505	*LOTTERY PICKS*	2520	Generates random Lotto numbers
482	*CHECKS.600DOCUMENTATION*	5040	Instructions for *CHECKRECORDER.600*
481	*CHECKRECORDER.600*	6300	Records, totals, displays or prints
480	*CHECKS.DAT*	2520	*DATA* file for *CHECKRECORDER.600*
479	*CHECKS.FIL*	2520	FILE sample for *CHECKRECORDER.600*
438	*DBASES.600*	10080	Database manager for Tandy 600
346	*STOCKVALUATION*	12600	PLAN template for the Tandy 600
345	*REGRESSION STATISTICS*	21420	PLAN template for the Tandy 600
344	*LOAN FLOW ANALYSIS*	7560	PLAN template for the Tandy 600
343	*COMPOUND INTEREST*	7560	PLAN template for the Tandy 600
342	*BOND VALUES*	12600	PLAN template for the Tandy 600
341	*ANNUITIES*	11340	PLAN template for the Tandy 600
340	*AMORTIZATION*	11340	PLAN template for Tandy 600
304	*BUSINESS MODEL*	3780	Business model forecaster: Tandy 600
303	*HANOI.600*	2520	Tandy 600 solution "Towers of Hanoi"
301	*PAYROL.FIL*	3780	FILE format for *PAYROL.600* (299)
300	*PAYROL.DAT*	2520	Data file for *PAYROL.600* (299)
299	*PAYROL.600*	13860	Maintain pay records, print reports
298	*SLOTS.600*	3780	Slot machine game for Tandy 600
297	*MOVINGMATH*	5040	Equations on screen for Tandy 600

parity:	Ignore
xon/xoff:	Yes
duplex:	Half
terminal:	Yes
add to EOL:	None
strip linefeeds:	Yes
filter chars:	Yes

- Press *ENTER* to record your modified settings and to return to the command line.

Now that you're set up, you're ready to dial (toll free) (800)638-8369 to connect to GEnie.

- Select *<C>onnect* from the *TELCOM* command line.
- *TAB* past the *to:* field to *number:* and type *18006388369*.
- Make sure that *using modem:* is set to *Yes*.
- Press *ENTER* to commence dialing, and then note the word *Waiting ...* on your screen.
- When you're connected, the screen will clear, and the bottom line on the screen will change to read *Telcom Session: ONLINE* and you will see the connect time clock displayed. The cursor will also jump to the top, left corner of the screen.
- On connection, type *HHH* (but do not press *ENTER*).
- At the *U#=* prompt, type *XJM11906, GENIE* and press *ENTER*

Once established as a subscriber (signing up makes you a subscriber), you'll want to hurry to the Laptops RoundTable to say "Hye dere" to MORTIMER (that's me) and become familiar with Software Library 9, which contains programs for the 600. One way to get to Laptops RoundTable is to use *LAPTOPS* as a command at any menu; the other is to use *M655*, which means *Move to page 655*.

Some final comments: You could skip the step to select the options, but it is best to be sure that the *capture to:* option, and some others, are cleared or defined. Note that, since you should not follow *HHH* with *ENTER*, you should therefore NOT use a *CTRL-M* (^M) in any automatic log-on script file that you may later prepare. The automatic log-on file *PHONBOOK.FIL* is not required for the initial sign-up operation and neither is a script file. However, once registered, you'll want to automate the logging-on process by preparing a script and changing the *<M>odify* settings to 8 bit, no parity. ❑

Dave Thomas is a system operator (sysop) at GEnie's Laptops RoundTable.

BASIC Bits

A source for Model 100/102 public domain software.

by Thomas L. Quindry

Because of the interest generated by my article on public domain software (March, 1988), *Portable 100* has extended me the opportunity to write a bi-monthly column on this subject. I hope this column will be an interactive one. I've written about some of the limited number of places where public domain software can be obtained. Perhaps *you* can tell me about your local bulletin board service (BBS) sources, and I can publish their names and telephone numbers so others who are interested can call. Further, I hope this column can become a source for public domain programs.

Here is what I envision can occur through the column:

- I will emphasize Model 100/102 public domain software unless otherwise noted. I will also include Model 200 public domain software when available, but in these cases, I'll generally have to rely on readers for contributions of Model 200 programs and their descriptions if there is no Model 100 counterpart.
- Names of readers who contribute programs I mention in the column will be published. Here's a good chance to see your name in print.
- Names of computer clubs and bulletin boards that distribute Model 100 public domain software will be published with the name of the person who first tells me about them.
- If I accumulate a large list of Model 100 computer clubs, I will compile and publish a directory in *Portable 100*.
- Software that I describe will be available both on disk (at $7 per disk) when ordered through me, and when possible, will be on the Portable BBS.
- When ordering a disk, readers who send me public domain programs on disk and an extra $1 will get the disk they requested plus bonus public domain programs returned on their disk. I will vary the bonus programs each month. Public domain programs sent can be from any legitimate source including programs you may have written and want to put into the public domain.
- When you order programs, I will distribute them on 3.5-inch diskettes (100K) for the Tandy Portable Disk Drive (TPDD). Owners of the TPDD2 (200K drive) have a utility to convert these disks. I cannot supply disks for the Disk Video Interface. With enough interest, I hope to provide for this type of distribution.
- For those who have a null modem cable and the know-how to transfer files from a TRS-80 Model 3 or 4, or an MS-DOS computer can get programs on a Model 3 or MS-DOS disk by special request at the same price currently charged for other disks. The programs will be in ASCII for easy transfer.

XMDPW5.BA

Users have always been searching for the better way to download (transfer) Model 100/102 programs from a bulletin board. As you may know, the Model 100/102 has a built-in telecommunications program, but it lacks error checking. *XMDPW5.BA* is a loader program to create a machine language *Xmodem* program for program uploading (transferring to a computer) and downloading (transferring from a source) with error checking. The *BASIC* loader program creates a machine-readable program called *XMDPW5.CO* of 4100 bytes. You can specify where you want the program placed in memory during its creation and thus avoid conflicts with other in-resident machine language programs.

This program, written by Phil Wheeler, truly improves on and integrates the results of previous authors of public domain software. It is based on *XMD100*, another *Xmodem* program by John R. Chenoweth. It includes on-line access to *BASIC* and *TEXT* with Hugo Ferreyra's *DIRACC* program integrated with this program. You can access *TEXT* by pressing *SHIFT-F7* and *SHIFT-F6* to take you to *BASIC*. You can return to *TELCOM* from either *TEXT* or *BASIC* without losing your telephone connection. *XMDPW5* also includes James Yi's split screen code, developed for the Tandy 200. Finally, this program includes a macro routine by Jon Diercks. In the *TEXT* mode you can create a macro file named *XMDMAC.DO*, which can perform pre-defined command sequences called by entering a *GRPH* or *CODE* character plus another keyboard input.

XMDPW5 provides both *Xmodem* CRC (cyclic redundancy check) or checksum protocols, two efficient error-checking methods, to *TELCOM* for uploading or downloading of text files and runs concurrently with *TELCOM*. You have all the original *TELCOM* commands plus the extra commands enabled by this

```
100 'TO COMPILE, USE ADDRESSES 62716,62960
150 CLS
200 PRINT@52,"ASCII values":PRINT@292,"(ESC to
end)";
250 A=0:A$=INKEY$:IF A$<>"" THEN A=ASC(A$)
260 IFA=0 THEN 250
270 IF A=27 THEN 300
280 PRINT@175,CHR$(A);:PRINT@177,A;:PRINT" "
290 GOTO 250
300 MENU
310 END
```

Listing 1. ASCII.BA, *giving examples of compilable statements for* Tiny Comp.

program. While using the *Xmodem* transfer protocol, it protects your current computer files better than *TELCOM*. If you name a new file to be downloaded with the same name as a previously created file, it asks you if you want to erase the older file. You also have two other useful functions for *TELCOM*. You can display a filename directory, as in *BASIC* and also display the free RAM remaining, as in the *MENU* display.

It automatically corrects send or receive errors. In the case of an error, it displays the cause of the error and the number of attempts needed to correct it. It will make ten attempts before aborting because of repeated errors.

You can use the *Xmodem* transfer with any baud rate and with either an external modem or the built-in internal modem. As with *TELCOM*, you can automatically dial a telephone number using the internal modem. With a companion program, which I do not have, called *XMDHZ5*, you can autodial with an external Hayes-compatible modem. If anyone has this program, I would appreciate getting a copy, and I will make it available. Without such a program, you can still dial using your external modem by getting into the *TERM* mode. Use *ATDP* or *ATDT* and the phone number for pulse dialing or tone dialing respectively.

TCOMP.BA

From the collection of programs offered from Club 100 in March comes *Tiny Comp* by Michael Weiblen. *Tiny Comp* is a Model 100 *BASIC* compiler, fashioned after the original *TinyComp* by David Bohlke (*80 Micro* May '80).

Tiny Comp takes a limited set of *BASIC* commands and compiles them into the equivalent of a machine language program. Where to put the compiled program into high memory is done by trial and error. The program tells you if you haven't left enough room and if you have reserved too much.

Tiny Comp supports four-function math using integer variables, *GOTO* and *GOSUB*, *CLS*, *MOD*, *PRINT* and *PRINT@*, *PEEK*, *POKE*, *IF-THEN* conditionals, *DATA* statements, *INP* and *OUT*, a variation of *INKEY$*, and other commands including *OR*, *AND*, and *XOR*.

To go with *Tiny Comp*, I've written a small program called *ASCII.BA* to display ASCII values for keyboard inputs. You can compile the program to create *ASCII.CO*. *ASCII.BA* is given in Listing 1. Line 250 gives an example of special treatment needed for the *INKEY$* function so that the compiled program will run the same as in *BASIC*.

BASBLD.BA

BASBLD.BA, also from the Club 100 Library, "builds" a *BASIC* program complete with *DATA* statements by converting a machine language program to the *BASIC* equivalent. Now why would you want to do this? If you want to distribute your own public domain programs written in machine language you would have to change them first to a way they can be distributed via BBS. You may also want to transfer a machine language program from your Model 100 to another Model 100 or to another type computer for storage on its disk drive. This program reportedly works on a Model 200 also.

SORTER.BA

SORTER.BA is a program to sort your data files. One of the nice features of this program is that you can specify the starting and ending column to include in your sort. For example, if you have a list of names and addresses and the last name always occurs in column 20, you can sort by last name if you start the sort in that column. A ruler showing column 1 to 40 is displayed on the top line, but you are not restricted to only forty columns for specifying your sort. It even has a provision for skipping the lines that make up a header for your list.

INCHES.BA

I really need this program to tell me when to stop writing. *INCHES.BA* computes the length of a text file in inches. This little utility was written by Keith Rogers.

TIMER.BA

TIMER.BA provides a display of large numbers for a clock or count-up/count-down timer. Six characters fill up your Model 100 screen. Function key commands let you change to one of three modes and let you temporarily stop the count during the count-up or count-down cycles. You can also get a reading of each lap by pausing the display while keeping the timer active.

USA.BA

Every patriotic American needs an alarm clock like the one provided by *USA.BA*. After you have specified the wake-up time in a twenty-four hour format of hours and minutes, the program displays a United States flag. At the appointed alarm time, it plays the *Star Spangled Banner* to sound the alarm. Better be a light sleeper with this one. The Model 100 isn't known for its loud sound output.

IBMJAB.BA

Another humorous musical ditty is *IBMJAB.BA* by Andrew Zarchy. This program provides music and lyrics for an IBM "company song." Just follow the bouncing ball and sing along with the music.

This concludes the descriptions of programs for this first month's column. Each month I will make up a distribution disk with all the programs of the month on them. To order the selection of programs described in this column or any previous "*BASIC* Bits" column, send $7 along with the month and year of the column. The price includes packaging and handling. The cost per disk is not to pay for the programs but for the cost of distribution. Send a check or money order and your name and address on a self-stick label to Thomas L. Quindry, 6237 Windward Drive, Burke, VA 22015.

The three disks described in my March, 1988, public domain article are still available but are now $7 each also. I've had to increase the price over what I have charged in the past. There has been a rash of incidents recently where the Post Office seems to have danced the fandango on disks I have mailed, so I've come up with better packaging to avoid this. If you ever get a damaged disk, just drop me a postcard and I will send you a new disk. No need to return a damaged one. ❑

The Public Domain

Editor's note: A phenomenon of the last few decades, software copyrighting has become a fog of gray areas. And, especially, the definition of public domain software takes on a variety of shapes, depending on the wishes and ambitions of the author. Generally, public domain software usually indicates—either in its source code or in a message it produces on the display screen—that users are free to copy and distribute it, although sometimes programs become public domain because their authors simply permit them.

However, don't assume that any program found on a BBS is there to be copied and distributed freely. Indeed, few programs get released with no restrictions. Most authors require that copyable programs retain the author's name in a banner, that all the files associated with the program remain unaltered, that all files be copied together, and the like. In other words, if you find a program on a BBS, don't assume you can alter it or distribute it freely to friends. The author has the last word, even if the program doesn't explicitly state copyright restrictions.

COMPATIBILITY: Tandy 100/102/200, Olivetti M10, Kyocera KC-85, NEC PC-8201A/8300 (with modifications)

Nat's Naturals

Four simple and useful BASIC *programs, plus PDD-2 DOS patches for the Tandy 200.*

BNKBAL.BA: BAREBONES BANK ACCOUNT CHECKING

Every fledgling computerist writes a checkbook program as part of the learning process. I wrote a jewel that did about everything a computer can do for keeping track of money. It worked but was cumbersome and time consumimg—and required over 5K of RAM.

Originally written to keep track of credit card charges and payments while travelling, now scaled down, BNKBAL.BA requires about 400 bytes of RAM with line zero (0) deleted.

When run, the program asks for a starting balance. When you enter this, it asks for a *Debit* amount. Then you verify this amount with (*Y*)es or (*N*)o, where an *N* deletes the entered amount and a *Y* decreases the *New Balance* figure by the verified amount. Then it requests another *Debit*. By entering and verifing a zero (*0*), the program advances to the *Credit* request.

The *Credit* request operates the same as the *Debit* request except that it adds the entered and verified amounts to the *New Balance*. A zero (*0*) entered and verified ends the program. The *New Balance* remains on the screen until you press *F8* (*MENU*).

-N.F. Ireland

```
Ø REM *BNKBAL.BA*v1.1 by N. F. Ireland
 5/6/87
1 CLS:G$="$$#####.##":INPUT"ENTER Starti
ng Balance";B:GOTO3
2 CLS:C=Ø:PRINT@1Ø,"BALANCE";USINGG$;B
3 PRINT:INPUT"ENTER Debit $";C:PRINT:PRI
NT"Verify -";USINGG$;C:PRINT:PRINT"CORRE
CT (Y/N)?"
4 ONINSTR(" YyNn",INKEY$)GOTO4,5,5,2,2:G
OTO4
5 IFC=ØTHEN6ELSEB=B-C:GOTO2
6 CLS:D=Ø:PRINT@1Ø,"NEW BALANCE";USINGG$
;B:PRINT:INPUT"ENTER Credit $";D:PRINT:P
RINT"Verify +";USINGG$;D:PRINT:PRINT"Cor
rect (Y/N)?"
7 ONINSTR(" YyNn",INKEY$)GOTO7,8,8,6,6:G
OTO7
8 IFD=ØTHENCLS:PRINT@1Ø,"BALANCE";USINGG
$;B:PRINT:PRINT"END":ENDELSEB=B+D:GOTO6
```

Listing 1. A simple and quick program for checking your credit card charges and other bank statements for accuracy.

```
Ø REM *DSKVER.BA* A DISK POWER 1ØØ/1Ø2 f
ile verification program by N. F. Irelan
2 M=MAXFILES:IFM<>2THENMAXFILES=2
4 CLS:PRINT@44,"*DISK POWER VERIFICATION
 PROGRAM*":PRINT
6 INPUT"ENTER FILENAME+EXT.";FI$
8 IFRIGHT$(FI$,2)<>"DO"THENPRINT"NOT A D
Ocument file!":FORN=ØTO1ØØØ:NEXT:GOTO4
1Ø OPEN"RAM:"+FI$FORINPUTAS1
12 OPEN"Ø:"+FI$FORINPUTAS2
14 PRINT:PRINTTAB(15)"VERIFYING"
16 IFEOF(1)ANDEOF(2)THEN26
18 IFEOF(1)OREOF(2)THEN28
2Ø A$=INPUT$(1,1):B$=INPUT$(1,2)
22 IFA$<>B$THEN28
24 NB=NB+1:GOTO16
26 PRINT:PRINT"DISK FILE VERIFIED! FILE
BYTES = ";NB:SOUND6268,1Ø:SOUND4433,1Ø:S
OUND3728,1Ø:SOUND3134,1Ø:SOUNDØ,25:SOUND
3728,1Ø:SOUND3134,5Ø:GOTO3Ø
28 PRINT:PRINT"VERIFICATION FAILED":SOUN
D12ØØØ,1ØØ:SOUNDØ,1Ø:SOUND16ØØØ,1ØØ
3Ø CLOSE:MAXFILES=M:END
```

Listing 2. This short BASIC *program checks* Disk Power *files for accuracy.*

DSKVER.BA: *DISK POWER 100/102* FILE VERIFICATION

When I bought my Tandy 100K disk drive, I was not impressed with Tandy's disk operating system, *FLOPPY.CO*, so I shortly bought *DISK POWER 100/102* from Ultrasoft Innovations. This operating system has proven absolutely trouble free and, in most cases, convenient and easy to use.

But *DISK POWER* does have one minor deficiency. It has no option to verify a *SAVE* to disk. While I have never lost a file using it, I still worry about *KILL*ing a RAM file. True, I can compare the length in bytes of the saved file to the length of the RAM file before I kill it. But to feel confident (having lost pages of text on other systems), I want to know I've saved each byte of the file and that I can access the disk file. *DSKVER.BA* gives me that assurance.

Using *DSKVER.BA* for verifying a document or text file is simple. After saving a file to disk from the *DISK POWER* menu, run *DSKVER.BA*. Type the name of the file saved plus the extension *.DO*; the program does the rest.

Unfortunately, *DSKVER.BA* does not verify a program saved in the compressed *BASIC* mode (with the *.BA* or *.b* extension). However, you can save *BASIC* programs in ASCII

and verify them in this form. While *BASIC* programs require about 50 percent more bytes in the ASCII mode, I nevertheless have plenty of space, since my *BASIC* programs seldom go over 1000 bytes. I run out of directory space well before the disk is full.

To record a *BASIC* program to disk and RAM, proceed as follows:

- Enable the disk unit with disk inserted.
- From the menu *LOAD BASIC*.
- Type *LOAD"XXXXXX.BA"* and press *ENTER* (*XXXXXX.BA* being the name of the compressed *BASIC* program to be saved in ASCII).
- In immediate mode, type *SAVE"0:XXXXXX",A* and press *ENTER*.
- After the *OK* prompt, type *SAVE"XXXXXX",A* and press *ENTER*.
- After *OK*, type *LOAD"DSKVER",R* and press *ENTER* and proceed as with a document or text file.

Tip: I save compressed *BASIC* programs to a *work* disk using *DISK POWER 100/102*. On another, *backup* disk I save the same programs in ASCII mode and verify them. If the work disk becomes faulty, I can easily bring a *BASIC* ASCII program into RAM and convert it to compressed *BASIC*.

-N. F. Ireland

FORMSR.BA: A PROGRAM FOR TYPING FORMS

Word processors are work-saving programs, but they do not help much in filling out prepared forms and questionnaires. You have to fill these out by hand, or use a typewriter. *FORMSR.BA* allows the Model 100 and a printer such as the Silver Reed EXP400 as a typewriter.

Before running *FORMSR.BA*, consult the manual for your printer if you are using other than a Silver Reed EXP400. Lines 30 through 46 contain Silver Reed printer codes as follows:

- Line 30 *CHR$(32)* Space character
- Line 40 *CHR$(8)* Backspace
- Line 44 *CHR$(10)* Line feed forward
- Line 46 *CHR$(27);CHR$(68)* Line feed reverse

The first three codes are conventional, but your printer may have a different code for "line feed reverse" or no code at all. If your printer's code is different, change line 46 to the proper code. If your printer does not have this function, delete line 46 and turn the knob on the printer carriage manually to effect a reverse line feed. In this case, the up arrow key has no effect.

The arrow keys control the vertical and horizontal positioning of the paper under the print head. When you position the paper and print head on a form line, type what should appear on that line (although it won't go to the printer yet). The number of character spaces remaining on that line are displayed on the screen. If you type too many characters, the message *LINE TOO LONG* appears on the screen. To shorten the line or make corrections, press the *DEL/BKSP* key. To print what you've typed on the form, press *ENTER*, which prints the line and moves the print head to the left edge of the paper. Answering *Y* to the *CONTINUE?* question permits repositioning, an *N* ends the program.

Tips: Once you start typing the program locks the left and right arrow keys and you can't move the print head horizontally, unless you delete the line you've typed with *DEL/BKSP*. You can, however, move the paper vertically.

If you press the *ENTER* key without typing characters, the print head returns to the left edge of the paper without printing.

-N. F. Ireland

```
1 REM *FORMSR.BA* A form program for the
 Silver Reed EXP4ØØ printer
2 REM by N. F. Ireland, June 29, 1988
5 M=MAXFILES:IFM<>1THENMAXFILES=1
1Ø CLS:CT=8Ø:OPEN"LPT:"FOROUTPUTAS1
15 PRINT@5,"FORM PRINTER FOR SILVER REED
":PRINT@85," SPACES AVAILABLE ON LINE."
16 GOSUB18:GOTO2Ø
18 A=LPOS(Ø):X=CSRLIN:Y=POS(Ø):PRINT@8Ø,
CT;:PRINT@4Ø*X+Y,;:RETURN
2Ø A$=INKEY$:IFA$=""THEN2Ø
3Ø IFA$=CHR$(28)ANDA<8ØANDB$=""THENCT=CT
-1:PRINT#1,CHR$(32);:GOSUB18:GOTO2Ø
4Ø IFA$=CHR$(29)ANDA>ØANDB$=""THENCT=CT+
1:PRINT#1,CHR$(8);:GOSUB18:GOTO2Ø
44 IFA$=CHR$(31)THENPRINT#1,CHR$(1Ø);:GO
TO2Ø
46 IFA$=CHR$(3Ø)THENPRINT#1,CHR$(27);CHR
$(68);:GOTO2Ø
5Ø IFA$=CHR$(13)THEN1ØØ
55 IFA$=CHR$(8)ANDLEN(B$)>ØTHENCT=CT+1:B
$=LEFT$(B$,LEN(B$)-1):PRINT@16Ø,SPACE$(7
9):PRINT@25Ø,SPACE$(13):PRINT@16Ø,B$;:GO
SUB18:GOTO2Ø
57 IFCT=ØTHENA$="":PRINT@25Ø,"LINE TOO L
ONG":GOSUB18:GOTO2Ø
6Ø B$=B$+A$:PRINT@16Ø,B$;:CT=CT-1:GOSUB1
8:GOTO2Ø
1ØØ PRINT#1,B$
11Ø CLS:PRINT@12Ø,"CONTINUE (Y/N)?"
12Ø ONINSTR(1," YyNn",INKEY$)GOTO12Ø,13Ø
,13Ø,14Ø,14Ø:GOTO12Ø
13Ø B$="":CT=8Ø:CLS:GOTO15
14Ø CLOSE:MAXFILES=Ø:END
```

Listing 3. This BASIC *program turns your Model 100 into a typewriter for filling out prepared forms and questionnaires.*

NEC Modifications!

Editor's Note: Though I couldn't test these programs thoroughly before publication, it appears that they will work without modification on all Tandy, Kyotronic, and Olivetti notebook computers. For NEC machines, make these changes:

- *Replace all occurrences of* PRINT@n *(where* n *equals some value) with* LOCATE nMOD40,n\40:PRINT.
- *Replace all occurrences of* M=MAXFILES *with* M=PEEK(64354). *Note that occurrences of* MAXFILES=n (MAXFILES *on the left side of the equation) should remain unchanged.*

-MN

ENVPTR.BA
AN ENVELOPE PRINTER FOR YOUR COMPUTER

I'm a sucker for a new printer, especially one on sale. Consequently, I have several printers of varying attributes, and to print addresses on envelopes with one or the other requires a tedious set-up procedure. In the past, I have accomplished envelope addressing using the Model 100's *DIRECT* mode but usually manage to spoil several envelopes in the process. I wrote *ENVPTR.BA* to alleviate this problem.

ENVPTR.DO is a *BASIC* program of 865 bytes (606 with *REM* statements deleted) and accommodates both the business-size (4 X 9.5 inch) and the letter-size (3.5 X 6 inch) envelopes (on-screen selectable).

Type in your return address in lines 17 through 19; if you don't, *Portable 100* may receive some interesting return mail. Also, when typing line 13, take care to place a space character directly after the first double quote character.

With *ENVPTR.BA* typed in, place a sheet of paper in your printer, run *ENVPTR.BA*, and note the line spacing. If the printing is double spaced, your printer is supplying an automatic line feed and you should delete *;CHR$(10)* from line 32 (three times), line 33 (once) and line 34 (three times).

To print your envelope, open its flap and place it under the roller. Advance the roller so the print head is just below the flap fold. Square the envelope by lining up the fold with the bail bar.

ENVPTR.BA can accommodate any length line in the addressee name, street, or city-state-zip (up to 80 characters for the large envelope and 55 characters for the smaller), although character lengths of much more than 30 look somewhat odd.

-N. F. Ireland

```
10 REM ENVELOPE PRINTING PROGRAM FOR THE
 MODEL 100 AND SILVER REED EXP400 OR OTH
ER SIMILAR PARALLEL PRINTER
20 REM BY N. F. IRELAND, 5/1/88
30 REM PRESENTED AS A GIFT TO PORTABLE 1
00 MAGAZINE
40 DEFSTRA,R:DEFINTL,N,Q
50 CLS:PRINT@10,"ENVELOPE PRINTING PROGR
AM"
60 PRINT@80,"Large or Small envelope (L/
S)?"
70 ONINSTR(1," LlSs",INKEY$)GOTO70,80,80
,90,90:GOTO70
80 LT=80:GOTO110
90 LT=55
100 REM SET RETURN ADDRESS
110 R1="Portable 100"
120 R2="PO Box 428"
130 R3="Peterborough, NH 03458"
140 REM ENTER ADDRESSEE
150 CLS:PRINT@90,"ENTER ADDRESSEE INFO"
160 PRINT:LINEINPUT"Name: ";A1
170 LINEINPUT"Street: ";A2
180 LINEINPUT"City, State Zip: ";A3
190 L1=LEN(A1):L2=LEN(A2):L3=LEN(A3)
200 IFL1=>L2ANDL1=>L3THENQ=L1
210 IFL2=>L1ANDL2=>L3THENQ=L2
220 IFL3=>L1ANDL3=>L2THENQ=L3
230 REM PRINTING ROUTINE
240 CLS:PRINT@40,"PRESS <ENTER> WHEN PRI
NTER READY":LINEINPUTR
250 LPRINTR1;CHR$(10):LPRINTR2;CHR$(10):
LPRINTR3;CHR$(10)
260 FORN=0TO8:LPRINTCHR$(10):NEXT
270 LPRINTTAB(LT-Q)A1;CHR$(10):LPRINTTAB
(LT-Q)A2;CHR$(10):LPRINTTAB(LT-Q)A3;CHR$
(10)
280 END
```

Listing 4. Use this BASIC *program to label envelopes with your printer.*

DOS Patches, Part II:
TANDY 200 *FLOPPY* LEARNS SOME MANNERS

Tandy's Portable Disk Drive operating software, *FLOPPY.CO*, is fatal to special *.BA* programs that contain embedded machine language (e.g., *SUPERA, MENU, DVORAK, HOTKEY*, and others), because it loads new *.BA* files into the very bottom of RAM, pushing all other files upward in memory to make room. Since machine language in notebook computers works properly only at its design address, these special *.BA* programs malfunction when moved, usually causing a cold start.

In conjunction with my *HOTKEY* program (Sept. '88, *Portable 100*), I published patches to make *FLOPPY* more civilized on the Model 100/102. The patches keep *FLOPPY* from moving special *.BA* programs but won't alter *FLOPPY*'s operation in any other way.

Here are patches for Tandy 200 versions of *FLOPPY*. First, load *FLOPPY* according to Tandy's instructions. Next, enter *BASIC*. Then ...

PDD-1 (100K DISK DRIVE) USERS, TYPE:

CLEAR 256,57500 and press *ENTER*
LOADM "FLOPPY" and press *ENTER*
POKE 59740,149 and press *ENTER*
POKE 59741,242 and press *ENTER*
POKE 59742,0 and press *ENTER*
SAVEM "NEWDOS",57500,60918,57500 and press *ENTER*

The patched *FLOPPY* is renamed *NEWDOS.CO* to indicate its patched status. Save *NEWDOS* to tape or disk, and thereafter always use *NEWDOS* instead of *FLOPPY*. To save it to tape, type: *CSAVEM "NEWDOS",57500,60918,57500* and press *ENTER*.

With *NEWDOS* on tape you needn't ever re-*IPL* using Tandy's *IPL.BA* program. Just load *NEWDOS* from tape:

CLEAR 256,57500 and press *ENTER*
CLOADM "NEWDOS" and press *ENTER*
SAVEM "NEWDOS",57500,60918,57500 and press *ENTER*

If you have *NEWDOS* on disk and ever need to re-*IPL* using *IPL.BA*, then immediately after doing so, load *NEWDOS* from disk and kill *FLOPPY*.

PDD-2 (200K DISK DRIVE) USERS, TYPE:

POKE 58799,149 and press *ENTER*
POKE 58800,242 and press *ENTER*
POKE 58801,0 and press *ENTER*
POKE 56673,24 and press *ENTER*

Because of the design of *FLOPPY* for the PDD-2, these changes can't be saved to tape or disk. Make them each time you install *FLOPPY* from disk.

-Mike Nugent

Real Cheap Time Input/Output!

Real-time data acquisition on the Model 100/102 for less than $10.

by Ken Osborn

Monitoring of environmental parameters by laptop computers has become affordable to the hobbyist by the availability of moderately priced analog-to-digital peripherals. (See "Easy as ADC," by Jerry Houston, *Portable 100/200*, September '85.) But although $500 for a 16-channel, 12-bit accuracy, data acquisition peripheral might seem like a steal to some people, I needed only one channel and not quite 1 percent accuracy—and I did not want to spend $500. I was thinking more like $10!

The application I had in mind involved taking air flow measurements directly from a vane anemometer. Used to measure air flow velocities in chemistry lab fume hoods, this instrument has no electrical output.

I intended using a photoemitter/detector combination to provide the necessary transduction. The anemometer would send electrical pulses from this combination via the RS-232 port to the Model 100, which would convert the serial input into air flow measurements. That was the idea.

A $10 INTERFACE

It turns out that it worked, but not without a few discoveries along the way. A photograph of the finished assembly shows the arrangement of the paired LED's placed on opposite sides of the anemometer. As the vanes of the anemometer interrupt the emission path to the photodetector, an on-off pulse is generated. The pulses are detected at pin 3 of the RS-232 port and counted as discussed below. Once calibrated by comparing the raw data against read-outs from the anemometer dial, the Model 100 converts the pulse rate directly to air flow rate.

THE RS-232 CONNECTION

Figure 1 shows the pin connections made between a DB-25 connector and the photoemitter/detector interface. I used an infrared emitter and detector pair available from Radio Shack (Catalog Number 276-142, $1.99). Other makes would work as well. Input to the computer from the photodetector is through the RS-232 port at pins 3 and 20. Pin 20 provides a +5-volt output. (The +5-volt signal is output when a *COM:* file is opened. Pin 20 is referred to as the data terminal read pin.) The photoemitter is connected between pins 20 and 7 (ground). A 200-ohm resistor between pin 20 and the photoemitter protects the LED.

The interface is positioned with the LED's on opposite sides of the anemometer so that the vanes can pass between them. As the vanes interrupt the light path, the resistance of the photodetector swings from low to high. At each interruption, pin 3 receives a pulse with a peak at about +5 volts.

The serial communications port of the Model 100 transmits

```
0 '
5 '  ******************************
10 ' *        RELTYM 2.5            *
20 ' *  (C) K.E. OSBORN 11/18/85    *
30 ' ******************************
45 '
50 ' MONITORS PULSED INPUT OF 1-400
60 ' HZ ON RS-232 VIA IR PHOTODETECTOR
70 ' CONNECTED TO PINS 20(+5V) & 3
80 ' (RECEIVE). IR EMITTER CONNECTED
90 ' TO PINS 7 (GND) AND 20.
100 '
110 '    INITIALIZATION
120 '
130 CLS:CLEAR 500:MAXFILES =2
140 DEFINT A-Z
150 CLOSE:OPEN "RAM:HOOD" FOR APPEND AS
1:OPEN "COM:97I1D" FORINPUTAS2
200 '
210 '    HOOD SETTINGS/TITLE LINE
220 '
230 CALL 17001:PRINT @ 10, " RS-232 MONI
TOR ":CALL 17006
240 PRINT @ 100,"";
250 INPUT "ENTER HOOD #   ";HN
260 PRINT @ 140,"";
270 INPUT "POSITION  #   ";PN
280 PRINT @100, "                ";
290 PRINT @140, "                ";
300 '
310 '   SCREEN LAYOUT
320 '
330 PRINT @87,  "      COUNT = ";
340 PRINT @ 171,"RATE =      fpm";
350 PRINT @290, "TIME = ";
1000 '
1010 '   SUM PULSES/KEEP TIME
1020 '
1030 CALL 6560:TI=PEEK(63779): 'INITIALI
ZE TIME
1040 TS=(TI+9)MOD10: 'STOP TIME
```

Continued

Listing 1. RELTYM.BA. *A program to measure and compare air flow rates using an anemometer and an inexpensive photoemitter and photodetector pair.*

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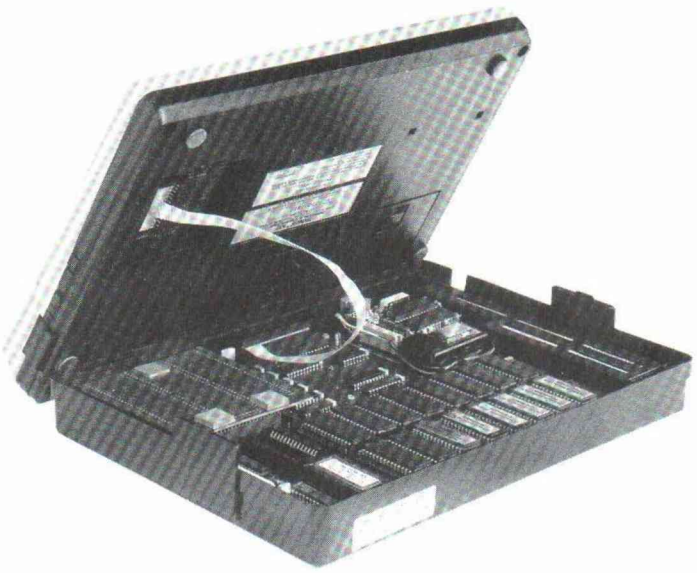

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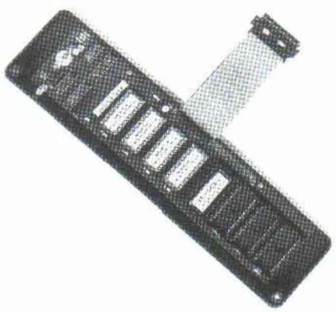
NOTE: Tandy 200 version includes TS-DOS instead of ROM-View 80.

THE ULTIMATE ROM II



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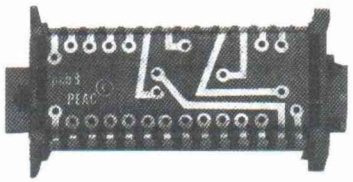

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LAP-DOS II	PC1-LD1	PC1-LD1	PC1-LD1	PC1-LPD1		PC1-LD1
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WORLDPORT 2400	HW1-MO7	HW1-MO7	HW1-MO7	HW1-MO7		HW1-MO6
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24K Memory Chip			HW1-RC4			
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TS-DOS ROM Chip	RS1-TS2	RS1-TS2	RS3-TS2	NE1-TS2		
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```
1Ø5Ø CALL 656Ø:IF TI=PEEK(63779) THEN 1Ø
5Ø: 'WAIT FOR CLOCK CHANGE
1Ø6Ø PRINT @ 2,"M";:POKE 65414,Ø
1Ø7Ø C1=PEEK(65414):N=N+1
1Ø8Ø IF C1>6Ø THEN C2=C2+1:POKE
1Ø9Ø C3=C1+C2*6Ø
11ØØ PRINT @1Ø2,  C3;
111Ø CALL 656Ø:IF PEEK(63779)<>TSTHEN 1Ø
7Ø:'8 SEC COUNT INTERVAL
112Ø '
2ØØØ '  CALC FLOW/RESET COUNTERS
2Ø1Ø '
2Ø2Ø POKE 65414,Ø:C2=Ø:PRINT @2,"  ";
2Ø3Ø R = 5.57*(C3/8)
2Ø4Ø PRINT @178,USING "####";INT(R)
2Ø5Ø PRINT @3ØØ,TIME$;
2Ø6Ø FOR WT = 1 TO 2ØØ:PRINT @285, "OK?"
;:NEXT
2Ø7Ø PRINT @285,"   ";
2Ø8Ø IF PEEK (6545Ø)>Ø THEN PRINT #1,"
"; HN;"          ";PN;"          ";R:P
OKE 6545Ø,Ø:GOTO 13Ø
57ØØ GOTO 1Ø3Ø
```

bytes to a data buffer at addresses 65350d through 65413d. Addresses 65414d, 65415d, and 65416d are designated as pointers for the buffer. The pointer at address 65414d is incremented each time a pulse is received at pin 3. This fact is the basis for the program in Listing 1. (A good book on this subject is *Hidden Powers of the TRS-80 Model 100* by Christopher L. Morgan.)

GETTING RESULTS

The program (Listing 1) converts input at pin 3 to air velocity measurements. Lines 130-150 initialize variables and open a *COM:* file for input. The number of the fume hood and location within the hood are entered in lines 250 and 270. The screen layout in line 300-350 prints the data variable names. Line 1030-1100 set up a continuous loop that counts the number of pulses.

The pulse counting loop starts by reading the system time with a call to 6560d. The initial time is set to the current second. The stop time is then calculated and the program waits at line 1050 until the clock advances. An *M* is displayed to indicate measurement has started and the buffer pointer is zeroed in line 1050. Lines 1070-1090 accumulate the counts in the pointer, which is arbitrarily reset at a count of 60. The count is printed on each pass through the loop in line 1100. At line 1110, the time is compared to the stop time. If two times are unequal, the program branches to line 1030 to take another reading.

If the system time equals the stop time, the program branches to the start of the calculation routine at line 2030. The rate is calculated from the accumulated number of pulses, the elapsed time (8 seconds in this case), and the anemometer calibration factor. (The calibration factor is determined by running a linear regression on a series of readings.) The screen display pauses for about one second. If the reading is acceptable, pressing any key places the reading into the data file. If not, the program starts another count.

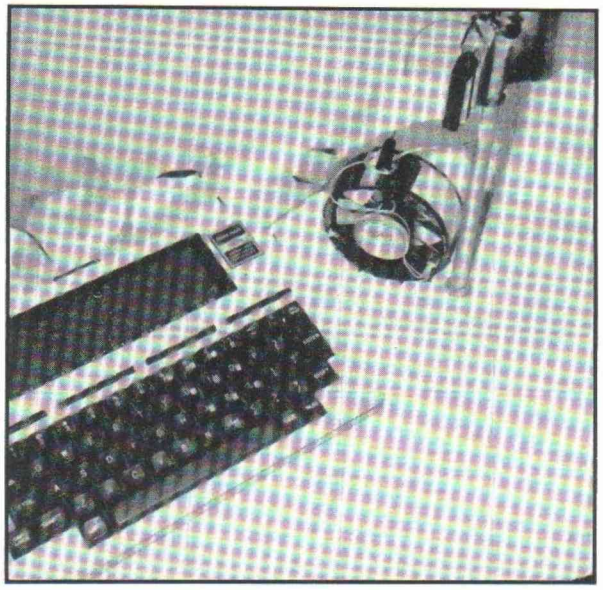


Photo 1. The author's Model 100, ready to measure air flow rate through the RS-232 port, is hooked up to his anemometer.

MORE?

I have used this interface and the program to evaluate fume hoods in a chemistry laboratory. With only limited modification, you could make frequency measurements of almost any oscillating mechanical system.

If you have questions send me a self-addressed, stamped envelope, with your comments/queries, and I will attempt a response. I can be reached at 1496 Palm Ave., Richmond, CA 94805.

❑

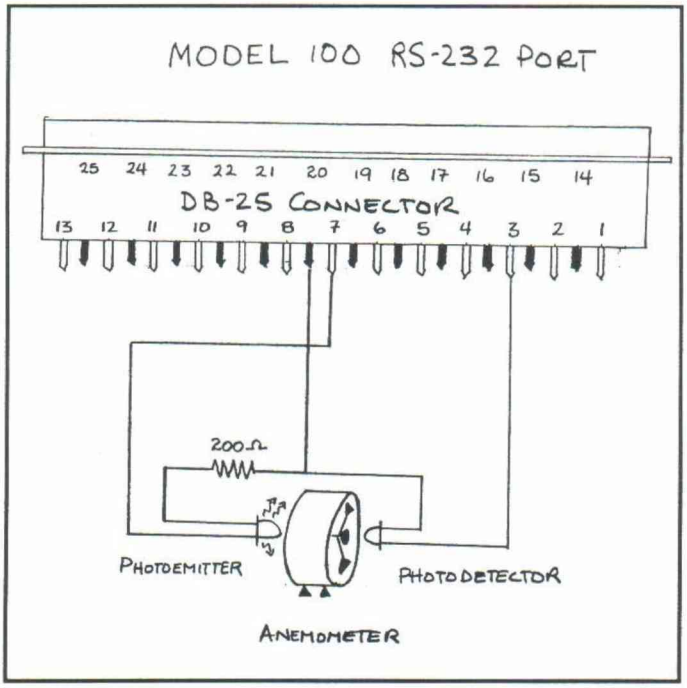


Figure 1. Photocouple interface and the connections used, with a $1.99 photoemitter/detector, to create an inexpensive device that measures frequencies on an anemometer. This setup can work for any oscillating mechanical system.

The Gold Card:

24-Karat Technology (Part 2)

When we last left Nuge, he was expounding on the Gold Card. He ran out of magazine long before he ran out of RAM.

by Mike Nugget (Part Irish, Part French, too)

Last month, I tried to provide an overall picture of SoundSight's Gold Card. This month I'll go into depth on a couple of features and throw in some miscellaneous tidbits.

HEAVY-DUTY ERROR CHECKING

Since the Gold Card is used in some industrial and medical environments, where the integrity of the data can be critical, Gold Card's operating system (*GolDOS*) incorporates extensive error checking and reporting, as well as multiple levels of testing. Here's an excerpt from the *GolDOS* manual:

"Much of the Beta testing for the Gold Card was done in a very brutal environment. Extremely cold temperatures, wet environments, and nearby static electrical discharges. An error checking system was built into the operating system that checks the result of any sector that has just been read or written. The sector just read or written is read back in and compared to the original to ensure correctness. Each read or write results in an additional read and compare.

"At the very lowest level, Error Checking is enabled as a write verify option which reads back in each sector written and compares it to the original. A write is tried three times before the system gives up and provides error messages to the user that may be used to diagnose the problem. Read cycles also use error checking.

"If a Read or Write fails an Error Check, a screen of information is displayed that may be printed for analysis of the problem."

Much of the Beta testing was done in a very brutal environment.

I saw this error checking after I crashed a Gold Card by letting its battery go almost dead. The cards rely on the computer's power to recharge their lithium batteries, so it's necessary to run the computer at least a few hours a week. By leaving my machine off for an extended time, I allowed the battery of my oldest card to drain to a very low level. It began to lose its mind, and I was presented with detailed error check screens.

The first screen tells whether it was a read or write error and, if a *BASIC* program was running, displays the *BASIC* line number active when it happened. Also shown are the sector number where the error occurred; the number of bytes being written at the time; the offset of the bad byte within the sector; stack, moat, and beginning RAM address of the block from which data is being read or into which it is being written; the actual memory address at which the error occurred; a pass count (valid only for initialization and non-destructive memory tests); and the good and bad bytes (i.e., the expected value and the actual value). If an invalid sector was referenced, that is also indicated.

The bottom of the screen lists your options: abort the operation, retry it, print the error screen to a printer, turn off error checking, and display another screen of information. That second screen shows a hex dump of the offending data and offers the same options as the first.

TESTING

GolDOS offers several memory and hardware tests. Two are similar, the destructive and non-destructive tests. Both write, then read, two separate patterns of bits to every byte on a card. The destructive test is performed whenever the Gold Card is initialized. It clears the card and destroys all files. The non-destructive test is performed when the user requests it. It preserves a sector's data and restores it after the sector has been tested. It also allows you to set a pass count. That is, you can choose to run the complete test from one to 9999 times. You can even choose to run the test continuously until a key is pressed. That's useful for "burning in" cards and for laboratory testing, to show the effects of environmental changes made during the test.

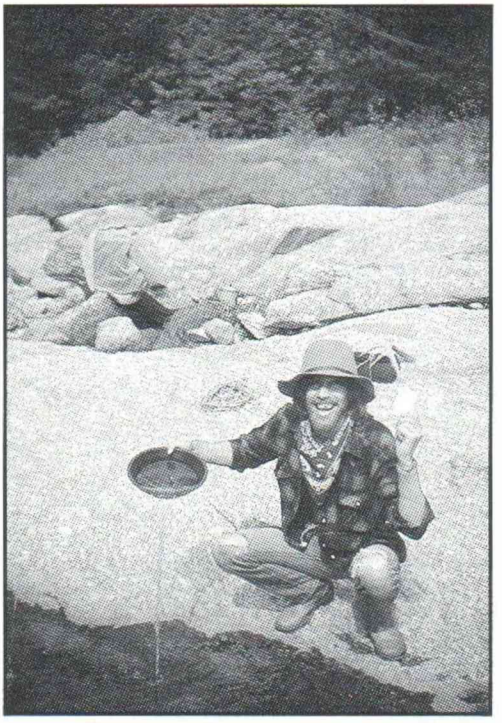
Another (destructive) test is the memory test, designed to test a card's ability to "remember," or retain, data. It has a write test which writes a shifting bit pattern to the card. When done, you can immediately go to the read test or wait any amount of time, to allow the card to be subjected to some environmental condition (e.g., extreme overnight cold) before running the read test. The read test runs continuously until a key is pressed. It displays an error count on the screen and writes a list of sectors where errors occurred to a RAM file for later study.

```
Pg:1  -GoldCard Directory- Free:249.25K
[DATA.DO  ]PLAYER.BA -.-       -.-
 -.-       -.-       -.-       -.-
 -.-       -.-       -.-       -.-
 -.-       -.-       -.-       -.-
 -.-       -.-       -.-       -.-
 A:Active     3.25K
Ram  L/fl Move Util K/fl  --  Rnam Menu
```

Figure 1. Directory page 1 (of nine pages) showing the files on drive A. Drive B has its own similar directory.

```
          -Ram Files-   19268 Bytes free
[GCREVW.DO]NOTE.DO   HI_SUZ.DO -.-
 -.-       -.-       -.-       -.-
 -.-       -.-       -.-       -.-
 -.-       -.-       -.-       -.-
 -.-       -.-       -.-       -.-
 A:Active
GldC S/fl Move Util K/fl  --  Rnam Menu
```

Figure 2. The RAM file menu lets you manipulate your RAM files. You can even edit RAM text (.DO) files directly from this menu.



It looks like things really panned out for this Portable prospector!

VERIFY

The verify routine can be run at any time from the utility menu. It goes through the card and checks that the files are in good shape. If something got scrambled somehow, the verify routine offers the option of killing the file or trying to save what it can. Verify is also used when changing cards. When you replace a card with another, you run verify to check and log in the new card and update the menu display with the new file names.

BLOOPERS

A minor problem when running PCSG's *Lucid* from the ROM Eliminator happens when the first cell you edit contains data. The edit line displays garbage, the computer emits a long beep, and you must press the reset button to exit. It's harmless but annoying. SoundSight is working on the problem. Meanwhile, a simple solution is just to edit a blank cell before any others. Once the blank cell has been edited, the problem is gone.

Another minor glitch is that Gold Card's menu mode defeats the computer's automatic power-down feature. It won't time out, so if you're running on batteries, remember to turn off the computer when you're not using it. Or at least exit Gold Card.

I found only a few small errors in the documentation, information that was correct for earlier versions and needs to be updated for the current version.

ROM ELIMINATOR

SoundSight is working on another glitch of sorts in the ROM Eliminator. The manual says you can turn the Eliminator on from *BASIC* via an *OUT 56,17* statement and turn it off via *OUT 56,1*. This works on the majority of machines, but on a few, mine included, *OUT 56,17* sends them into limbo. Pressing reset gets my Model 100 back on its feet, apparently unharmed.

There seems to be no pattern, no way to predict which machines will react badly. So far, they haven't figured out why it happens or how to get around it. Again, the interim solution is simple. Those with finicky machines should just use *RAMROM.CO* to switch the ROM Eliminator on and off.

I'm thoroughly impressed with the attitude of the developers.

GOLDCARD IPL

Supposedly, you can't run the Gold Card as an IPL (initial program load) program, since *IPL* requires a legal file name, and *GldCrd* (the name of Gold Card's trigger file) is not a legal name.

Well, it can be done. You just have to be sneaky. At IPL time, the cursor is always over *BASIC*. *GldCrd* is always at column two, row two on the computer's menu. To run *GldCrd* manually, you'd press the right arrow, the down arrow, then *ENTER*.

Since the IPL procedure simply stores keystrokes (usually a program name) and types them in at IPL time, I've assigned the arrow keys and a carriage return (*ENTER*) to the IPL string. To set it up, enter *BASIC* and type: *IPL CHR$ (28)+ CHR$(32)+ CHR$ (13)* and press *ENTER*.

This technique will run any file whose name is in column two, row two, not just *GldCrd*.

MORE WISHES

Last month, I wished for an option to overwrite or rename files when loading, saving, or moving to a destination file of the same name while in Gold Card's menu mode. I'll add two more wishes.

First, in Gold Card's menu mode, the RAM menu doesn't

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```
 A: SoundSight ROM Eliminator  v 3.00
[GOLDCD.RM]GOLDTX.RM FORMS.RM  -.-
 -.-        -.-       -.-       -.-
 -.-        -.-       -.-       -.-
 -.-        -.-       -.-       -.-
 -.-        -.-       -.-       -.-
ROM Socket is Enabled
Save Load Swtch  --   --   --   --   -- Exit
```

Figure 3. Running RAMROM.CO *displays the ROM Eliminator menu. Here, you can load, save, kill, and switch ROM's.*

```
Error on Wr at Line 120
Sect/IO Size/Offset  27 256 0
Stk/Moat/Mem 60138 42507 60511
Add of Er/Pass 60515 0 0
Gd Byte/Bd Byte 4F  4C
Error in BASIC I/O - Invalid Sector
(A)bort (R)etry (M)ore
(P)rint (E)rror Check Off
```

Figure 4. The first error-check screen contains a wealth of information about any error that might occur.

```
F108: 20 15 1C 08 8C 95 FF 5C  .......\
F110: 42 43 15 5A 5B 55 12 12  CD.Z[U..
F118: 12 02 00 00 5A 71 7B 10  ....Zq{.
F120: 20 15 1C 08 8C 95 FF 5C  .......\
F128: 42 43 15 51 5B 55 12 12  CD.Z[U..
F130: 12 02 00 00 5A 71 7B 10  ....Zq{.
(A)bort (R)etry (M)ore
(P)rint (E)rror Check Off
```

Figure 5. The (M)ore option of the first error-check screen produces this hex dump of the erroneous block of data.

show the size of the RAM file under the cursor. I think it should.

Second, I'd like to see the ROM Eliminator indicate the name of the ROM file currently loaded in the Eliminator.

DOCS AND ATTITUDES

I've referred to the Gold Card documentation as excellent. That's partly because it goes far beyond describing how to use the product. There are technical explanations of ROM trigger files and a list of system hooks used by the Gold Card, very good compatibility notes, discussions of Gold Card's RAM memory usage and card sector layout, and scads of sample programs. And anything more I've wanted to know has been just a phone call away.

They talk freely about their systems.

I'm thoroughly impressed, not only with the Gold Card and ROM Eliminator products, but with the attitude of the developers as well. Unlike almost every other developer I've seen in the notebook computer field, who tend to keep everything a secret, SoundSight and King Computer Services talk freely about their systems. I've always found them quite willing to share information on the inner workings of their products. With such openness, programmers and developers should have an easier time creating new applications. And that will benefit all of us.

❑

Expand Your Options

Weltec has a 5.25-inch floppy drive for your 1400LT.

by Mike Nugent

The Tandy 1400LT is an ideal machine for my work. Its 728K of RAM memory and dual 720K, 3.5-inch floppy disks provide everything I need—almost.

I discovered early on that much of the MS-DOS world still runs on 5.25-inch floppies. Many programs are still provided only on that medium. And for me the only practical way to move files to and from the Portable BBS is through its "fiver."

Weltec digital, inc. (their capitalization) solves that problem nicely with its *W525 External Floppy Disk Subsystem*. This lightweight 5.25-inch floppy disk drive plugs easily into the 1400's *EXT FDD* (External Floppy Disk Drive) connector and has provided reliable service for the two months I've been using it.

Installation is absolute simplicity.

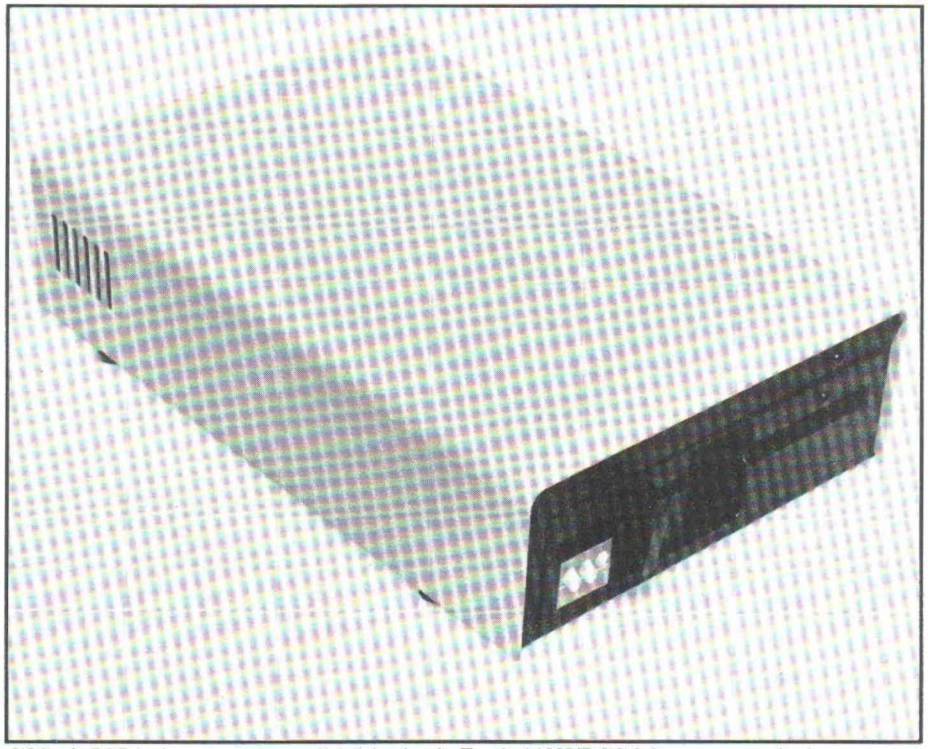
All components of the system, consisting of the drive unit, power supply, and interface cable attaching the drive to the computer, are ivory in color matching the 1400LT for a neat, integrated appearance. All cables have molded connectors and are sufficiently long to allow placing the power supply on the floor (reducing desktop clutter) and the drive anywhere on the desk in relation to the computer. The interface cable connectors have screws to ensure a secure connection to the equipment. These screws have large, rubberized heads to enable easy tightening with just your fingers.

I find the drive's appearance and operation very satisfactory. Because of its light weight, which I like, I'm not sure whether its construction would enable it to withstand rugged use. (I'm not going to abuse it to find out!) For day to day use in a normal environment, it's just fine.

Installation is absolute simplicity. Plug the power supply into the wall outlet and to the drive, plug the drive into the computer, turn on the drive, turn on the computer, and then wonder, "Is that it?"

That's it. The 12-page manual is clearly written and well illustrated. You're not likely to make a mistake if you follow the simple instructions. The manual also discusses proper use of switched power strips, extension cables, and the care and feeding of floppy disks. A list of the pinouts on the 37-pin interface connector is included. The last three pages discuss radio frequency interference, the warranty, product return procedures, and repair prices.

The manual makes it clear that the drive should be turned on before booting



Weltec's 5.25-inch external floppy disk drive for the Tandy 1400LT. With its easy setup, it gives you more software and hardware flexibility.

the 1400LT, so the LT can recognize its existence. If you haven't done that, just reboot the LT using the *CTRL-ALT-DEL* key combination.

As explained in the Weltec manual, the Tandy 1400LT has a drive select switch that lets you designate the external drive as drive A, so you can boot from it. With the switch set to INT, the way I use it, the Weltec drive is assigned as the next available drive on bootup, normally drive C.

PROBLEMS AND SERVICE

When the drive first arrived, I installed it and went to work testing it out. I experienced problems in consistently reading disks. I called Weltec's toll-free number for help, not telling them who I was, and was quickly transferred to a very patient and friendly technical person. He listened to my problems, asked some questions and discussed the possibilities. When we decided that the drive probably suffered from an alignment problem, possibly caused during shipping, he transferred me back to someone else who gave me authorization to return the complete system. They wanted the complete system just to be sure it wasn't a power supply problem or something in the cables. A new unit would be shipped immediately.

Since the drive still worked sometimes, even if not always, I was reluctant to ship it back and be left without a 5.25-inch drive while waiting for a new one. Weltec let me keep the unit until the new one arrived. I don't know if that's normal company policy, but I appreciated their trust, and it certainly helped me out of a tight spot.

The new unit arrived within the week and has performed flawlessly. On several occasions, I've called Weltec with technical questions and have always found them responsive, helpful, and courteous.

I have had one other problem, which might just be unique to the 1400LT. My *CONFIG.SYS* file installs a RAMdisk on bootup; then my *AUTOEXEC.BAT* file copies some files to the RAMdisk. But the computer always "sees" the Weltec first, if it's connected, making it drive C and the RAMdisk drive D. When the Weltec isn't connected, the RAMdisk is drive C. My poor *AUTOEXEC.BAT* doesn't know where to copy the files.

I tried using *DRIVER.SYS*, provided with the 1400LT, to force a drive C even with the Weltec disconnected, making the RAMdisk always drive D. For reasons that Weltec explained to me, and which I still don't understand, this won't work.

One workable solution is to use a utility program that accepts keyboard input for batch files. I could then specify which drive is the RAMdisk. However, I prefer a solution that works automatically, requiring no operator input.

My solution is to have *AUTOEXEC.BAT* issue a *CHKDSK D:* command. If it finds drive D, the Weltec is connected and the RAMdisk is drive D. Otherwise, the Weltec is not connected, and the RAMdisk is drive C. (When DOS's batch parameter *ERRORLEVEL* equals one, it means that *CHKDSK* has not found a drive D.) Either way, it knows where to copy the files. There's probably a more elegant solution, but my batch file programming skills aren't what you'd call hot (yet!).

Weltec support has consistently been top-notch.

PILOT ERROR

The only other problem I've had was my own fault. Being generally unfamiliar with MS-DOS disk formats, and not finding the answer in the 1400LT manual (even though it was right in front of my face!), I had trouble properly formatting double-sided 360K disks. Another call to Weltec provided the answer right away. You must remember to use the */H* switch on the format command (e.g., *FORMAT C:/H*). Otherwise, the LT thinks it's formatting a 720K, 3.5-inch disk.

It was a dumb case of "pilot error" on my part, but Weltec might consider mentioning the */H* switch in their manual, just to help out us dumb pilots.

SUMMARY

After using the W525 daily for over two months without a trace of a problem, I can report that I'm very happy with it. The unit looks nice, performs well, and takes up little desk space. Support from Weltec has been consistently top-notch, and their toll-free number is a definite plus. The *W525 External Floppy Disk Subsystem* seems to be a good value for anyone needing a 5.25-inch drive for the Tandy 1400LT. ❑

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MANUFACTURER'S SPECIFICATIONS

Weltec Digital, Inc.
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Irvine, CA 92714
(714) 250-1959 (800) 333-5155

$279—Weltec Subsystem 5.25 Model W525B p/n:800.0060

Interface cable p/n:140.0083

Power adaptor p/n:310.0011
Input 120V AC (60Hz)
Output 12V DC @ 0.5A / 5V DC @ 0.8A

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Environmental range: 5 to 35 degrees C; 20% to 80% humidity (non-condensing)

Dimensions: 2.5 x 10.0 x 6.5 inches

Cables: One (1) provided

Reliability: MTBF (Mean Time Before Failure) 12,000 hrs.

Scratched Display? Restore It!

Ultrasoft Innovations' Ultralucent *makes unreadable screens readable inexpensively.*

by Terry Kepner

My Model 100 is one of the oldest on the market. But the plastic shield over the display is as clean and pristine as any brand-new Model 102. No, I have not been keeping my computer locked away safe from harm. My Model 100 has the all usual nicks, dents, scratches, and scars that document its hard use. So how did I manage to keep the display clean, you ask? The answer is that I didn't.

Just one hour ago, the plastic shield over my display was disgusting, covered with myriad small scratches that acted as a haze, partially obscuring the letters underneath. It was so bad that I have avoided using my Model 100 for the last year or so because of the difficulty I had reading the display.

But now the plastic shield over the display is as clear as a mountain stream. And I have Ultrasoft Innovations to thank for that change.

I had thought I would have to replace the Model 100 case cover to get a new, clear display, but that solution was too expensive. Then I heard about Ultrasoft Innovations' new product, Ultralucent, which promised to restore my display's plastic shield to factory-clean condition. It cost only $19.95, so I took the plunge.

It was so bad that I have avoided using my Model 100 for the last year or so.

WHAT YOU GET

The package arrived shortly after I requested it. In the small box were six abrasive cloths, a foam block, a one-ounce bottle of polishing cream, a lint-free cotton towel, and several pages of instructions.

The concept is simple, the same as that used with creating glass lenses and telescope mirrors. First, use a rough abrasive to reduce the surface to a uniform shape (for us that means flat); then use successively finer grades of abrasives to smooth out the scratches created by the coarser abrasives. Each finer abrasive makes tinier scratches while it removes the scratches left by the former abrasive. Eventually you end up with an abrasive that leaves scratches so small your eye cannot see them. Thus, the larger scars and scratches originally on the plastic shield over your display have been removed by literally removing several dozen layers of molecules from the surface of the plastic shield (the shield is more than thick enough for you to do this a dozen times over before beginning to worry about wearing through the plastic).

The abrasives included with Ultralucent start at a grade of 2400 and end with a grade of 8000. If your plastic cover is heavily scratched (not only can you see scratches, but you can actually see the depth and width of individual scratches without difficulty), you can special order the coarser 800 and 1500 abrasive grades.

Fortunately, the scratches on my display didn't require those special grades. I had started with the second abrasive of the six instead of the first. But that—as it turned out—was a mistake. About ten minutes into the process I noticed a scratch that the current abrasive (number 4) wasn't removing. On closer inspection, I saw that this large scratch had been hidden by the haze of smaller scratches. So I had to start over with the 2400 grade abrasive, which eliminated it.

MY EXPERIENCE

Since my wife and I were starting on a lengthy, several-hour trip, I decided that trying out Ultralucent would be one way to beat automobile boredom. From that experience, I make the following recommendations: 1) work in a well-lit area—outside in the sun is a good start; 2) have on hand three or four cotton swabs; 3) be ready with several small pieces of cotton cloth; 4) use a small dish of water; 5) take your time.

Naturally, I did none of the above. It was a cloudy day and I didn't bring along either cloth, water, or cotton swabs. I just wrapped the first abrasive cloth around the foam block and started scraping. The first step, with the 2400 grade cloth, took less than three minutes and rendered my display almost completely unreadable.

Here is where the water, cloth, and cotton swabs would have helped. Between each step of abrasives you must clean the

Data Acquisition System
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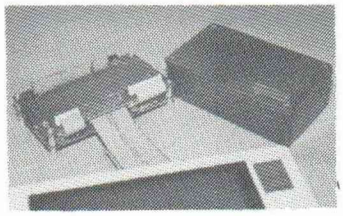

Other options available, call or write for more information. Specify (M100-DACQ for Model 100, M4-DACQ for Model 4) interface cables.

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plastic display cover thoroughly. And a damp cloth would have greatly simplified that for me. The cotton swabs would have helped clean the fine particles of plastic out of the thin gutter that separates the plastic shield from the rest of the computer case. Instead, I used lots of lung power and a folded business card, and as a final step, I wiped the plastic off with my palm. Not elegant, but it worked.

With each finer grade of abrasive (which took only one or two minutes to use), my display became clearer and easier to read. Note one point the instructions emphasize: use a back and forth, and up and down motion, not a circular motion. With the tiny Model 100 display it was easy to avoid the circular motions.

Another important point is that, frequently, you must clean each abrasive cloth and wipe the display. I simply slapped the abrasive cloth and foam block against my pants leg every 15 or so seconds, then brushed my hand lightly across the display.

By the time I finished with the 8000-grade abrasive, the plastic shield over my display was completely clear.

The final step is cleaning the display with the finishing cream/polish included in the kit. This removes any plastic pieces stuck to the plastic shield because of static and at the same time fills in the tiny scratches left by the last abrasive.

THE RESULT

Even though I did everything wrong and took far less care than I should have, I nevertheless have a display that looks factory new.

The instructions included with Ultralucent are thorough and cover every eventuality, plus directions on cleaning *any* hard plastic display, not just the Tandy small screen displays. The instructions even tell you how to correct distortion in a plastic surface by abrading the surface with this kit.

All told, I spent less than fifteen minutes using the abrasives; the rest of my time was spent cleaning the display between abrasives and admiring my work.

So because of the ease of use and results of this inexpensive product, I heartily recommend Ultralucent to anyone suffering from a scratched display. ❑

MANUFACTURER'S SPECIFICATIONS

Ultrasoft Innovations Inc.
76 Main Street
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Champlain, NY 12919
(514)487-9293

Ultralucent—$19.95

Includes a series of color-coded cloth abrasives for removing scratches from hard plastic displays (such as the ones on the Tandy series of notebook computers, the Kyotronics KC-85, the NECPC-8201A/8300, and the Olivetti M10).

Laptop-Leg *takes away the burden of holding your laptop.*

Laptop-Leg Eases Weight On Your Lap

Input Systems Inc., has introduced *Laptop-Leg*, a device designed to ease the annoying problem of excessive laptop computer weight. The detachable, telescoping device is fastened to the underside of the computer and adjusts in length from the user's lap to the floor. This allows the weight of the computer to be supported by the floor while the computer rests comfortably and securely on the user's lap. The attachments and instructions are included, and require no special skills or tools to install. Laptop-Leg weighs less than ten ounces and can be carried in a briefcase or in most laptop carrying cases.

Retail price is $24.95. For further information, contact Input Systems, Inc. Computer Consultants, 15600 Palmetto Lake Drive, Miami, FL 33157 (305)252-1550. *Or circle #71 on your Reader Service card.*

Non-Perforated Paper for Banners, Etc.

Micro Format, a continuous-paper products manufacturer, has anounced two *Banner Band* products: *Christmas Banner Band* and *Party Banner Band*. Banner Band is 45 feet of continuous computer paper. Each roll is 9.5 inches wide with half-inch margins. There are no cross perforations, making Banner Band the perfect product for banners, signs, spreadsheets and giant graphics. Banner Band is 20-pound bond paper available in white, yellow, pink, blue, green, goldenrod and the above-mentioned party designs.

For further information, contact Micro Format, 533 N. Wolf Road, Wheeling IL 60090 (312)520-4699. *Or circle #61 on your Reader Service card.*

Improved *Desk Link* from Traveling Software

Traveling Software has released *Desk Link 2.0*, an updated version of its computer connectivity system. Release 2.0 adds background operation, dual print spooling and supports extended and expanded memory. It comes with both 5.25-inch and 3.5-inch disks and 25 feet of RJ11 standard phone cable and universal connectors. It installs easily and connects two computers at distances up to 100 feet through standard RS-232 serial ports using ordinary phone wire. It is compatible with most popular networks.

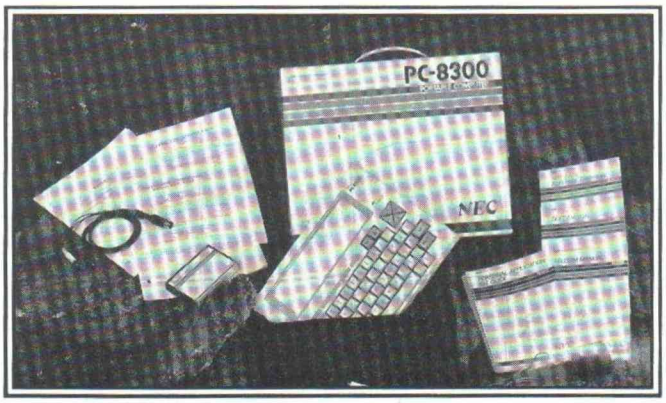
Registered users of the original *Desk Link* version will receive an upgrade to Release 2.0 free of charge if their registration cards were received by Traveling Software by August 31, 1988. Retail price of *Desk Link* 2.0 is $169.95. For further info, contact Traveling Software, Inc., North Creek Corporate Center, 19310 North Creek Parkway, Bothell, WA 98011 (206)483-8088. *Or circle #66 on your Reader Service card.*

The Complete NEC Notebook Package

From Daniel Cohen of Plymouth, NH, comes the *Complete NEC Notebook Package*, designed to supplement the versatile NEC PC-8300 (also available separately from Daniel Cohen).

The NEC Notebook Package adds a multiprogram ROM chip, high-grade padded travel pouch, notebook computer resource guide, and NEC A/C adapter to the PC-8300's existing talents (word processing, *BASIC* programming, communications, 3-pound total weight). Although similar to the Tandy 102 in design, the PC-8300 includes more than twice the standard memory and both a text formatter and *XMODEM* in ROM. The built-in *TELCOM* program, and serial and parallel ports allow file transfers between the PC-8300 and either CP/M, Macintosh, and MS-DOS machines. Daniel Cohen offers assistance for his Complete NEC Notebook Package on an owner support hotline.

Price for the Complete NEC Notebook Package is $525.00; price for the NEC PC-8300 alone is $399.00. For further information, contact Daniel Cohen, P.O. Box 237, Plymouth, NH (603)968-3160. *Or circle #63 on your Reader Service card.*



Daniel Cohen's Complete NEC Notebook Package *supplements the existing talents of the NEC PC-8300. Computer is also available.*

DEFUSR appears monthly to answer your questions about Tandy notebook computers.

Send your queries to: DEFUSR, PORTABLE 100, P.O. Box 428, Peterborough, NH 03458-0428. Please enclose a stamped, self-addressed envelope for our reply.

RE: INK

John S. Neufeldt (Sept. '88 DEFUSR) may be interested in my experience with re-inking printer ribbons.

I use a DMP-200 whose ribbon outside its cartridge parallels the full path of the printing head. I believe the DMP-100 is similar.

For several years I have re-inked my two ribbons with a can of Ebonize Ink Spray from Upwego Computer Supply, Inc., 120 W. Madison St., Chicago, IL 60602. When a ribbon becomes too faint for use, I put the spare into the printer in order to stay in business. At leisure I open the used cartridge as if to remove the used ribbon then spray the exposed old ribbon well. I do this outdoors when there is a wind, to avoid inking my own lungs. During twenty-four hours indoors, the ink spreads, and its carrier solvent evaporates. Then re-cover and store in the polyethylene bag until it is needed to replace the ribbon in the printer.

A spray of Ebonize also overcomes an annoying characteristic of the Radio Shack ribbons. Part of the endless loop of ribbon is found wrapped around the outside of its box. This exposed length dries out during storage and, when put into use, yields faint characters. Commonly, a brand-new ribbon can print ten pages beautifully black except for part of one page, usually near the middle of the sequence, which is barely readable and has to be reprinted. Before inserting a brand-new ribbon, this dry length can be moistened with a spray of Ebonize.

My can has sprayed at least ten times and even now has only lost its propellent, while some ink still remains. The ribbon eventually becomes puckered where the print head strikes and should be retired before fibres come loose and damage the head.

R.M. Organ
Bethesda, MD

A BIT MAPPED BUG?

I enjoy every bit (short pun) of *Portable 100*. My recently purchased 102 and the TDD2 remind me of my old days with Timex/Sinclair, searching for programming information.

I've run across a small bug when trying to do bit mapped graphics. Whether I use my Epson RX-80 or a Tandy DMP-130A printer, I get the same bug, as in the following program:

It sees a CHR$(32) and prints it eight times!

```
10 LPRINT CHR$(27)"K" CHR$ (0) CHR$ (1);:'set printer to 60 dots/inch
20 FOR N=0TO255 :'initialize loop
30 LPRINT CHR$(N);:'send number
40 NEXT N:'return of control loop
45 'return printer to default settings
50 LPRINT CHR$(27)"@"
```

The printer will not accept a *CHR$(9)*. Instead, it sees a *CHR$(32)* and prints it eight times.

Please HELP!!! I love doing bit mapped graphics.

Ted Knyszek
Parma Heights, OH

'Tain't a bug, actually. It's just that PRINT *and* LPRINT *statements automatically expand tabs [*CHR$(9)*] into spaces [*CHR$(32)*] before printing them. So, you need another method —* PNOTAB. *This routine, at Model 100 ROM address 5232, sends data directly to the printer with no tab expansion. You can access the* PNOTAB *routine via the* CALL *statement. Try replacing line 30 of your program with* CALL 5232,N *(where N = the value of the character you want to send).*

On the Tandy 200, the PNOTAB *routine is at ROM address 5520 decimal. So T200 users, use* CALL 5520,N.

-MN

AUTO HANGUP?

I have recently built an auto answer circuit for my Model 100 from the book *Inside the Model 100*. The circuit works perfectly but there is one problem: if the computer is waiting for an incoming call and someone calls my phone (it's not a dedicated phone line), it locks the computer up. When the phone rings I have the computer go into a routine that opens the modem line and waits for a prompt from my host computer. If someone calls other than my host computer, the prompt obviously never occurs, locking the computer.

Question - is there a machine language call statement that will detect a *no carrier* condition and disconnect the computer from the line automatically instead of locking up?

Philip Tuttobene
Grande Terrace, CA

Answer - depends on your program. If

it calls a ROM routine at 52E4 hex (21220 decimal), as do MDM: *and* COM:, *it will lock up. That routine takes the phone off-hook and waits for a carrier, calling both 729Fh (29343d) to see if* SHIFT/BREAK *is pressed and 6EEFh (28399d) to check for the carrier, continually looping through those subroutines until either condition is detected.*

Instead, your program must handle these things itself, calling individual routines to take the phone off-hook, set TELCOM *parameters, etc. Then call the carrier detect routine at 6EEFh, which returns with the Z flag set if a carrier is present. With assembly language, you can test flags and take appropriate action.*

In BASIC, *you can't test flags. Instead, try reading port D8h (216d), bit 0 of which holds the carrier detect status (1=carrier, 0=no carrier). Use the* INP() *statement to read the port, and test bit 0 by* AND*ing the result with 1, something like the following:* IF INP (216) AND 1 THEN *carrier* ELSE *no carrier*

That may be a start. You might also check some of the information services (i.e., GEnie, CompuServe, Source, etc.). What you're looking for may already be available. Other ideas, anyone?

-MN

MORE DETAILS, PLEASE...

I found Mike Nugent's *HOTKEY* program very interesting, especially since, not more than a week earlier, I tried using the *MERGE* statement to make a program update itself (the variables, namely). But after the merge, the program just stopped. I was at my wits' end about it, thinking it might be just a glitch in my Model 200. Then here comes *HOTKEY.BA*. Now correct me if I am wrong, but that's why you stuffed (as you put it) the commands into the keyboard buffer, isn't it?

You mentioned that the program could be modified to provide for more commands. However, you did not provide an assembly language source code listing like *Custom 200* does, nor did you give any insight on how we can achieve that end. I am not an accomplished assembly language programmer yet, but with the right information I can stumble through a task.

When I first looked at this program, I couldn't make heads or tails of it. After a couple of hours studying it, I think I understand it fairly well. Like, I figured the reason you provided us with a method for moving the program up one byte at a time is that you can never be sure of where to start poking the program in. Am I correct? I would most appreciate a follow-up on the article.

In closing, I'd like to thank *Portable 100* and Mr. Kepner for being there for us M100-M200-ites. And you, also, Mike, plus the other contributors to *Portable 100*. I have been edified, in the last six months or so far beyond where I was before. Programs like *HOTKEY.BA* and those of *Custom 200* are the reasons why.

Bernard Upshaw
Landover, MD

Thanks! We're glad you feel that way. I couldn't expand on HOTKEY *without cutting out other fine articles.* HOTKEY *contains many interesting techniques that I plan to share with readers.*

You're right about stuffing commands into the keyboard buffer to restart a stopped program, run another program, etc. If I recall correctly, I learned the technique from Jim Irwin's clever LAPWORD *program. The Model 100/102 keyboard buffer begins at 65451, and address 65450 holds the number of characters currently in the buffer. The Tandy 200 keyboard buffer is at 64799 with the count stored at 64798. So to stuff the T200's keyboard buffer, change the* POKE*s in lines 390, 400, and 420 from 65449 and 65450 to 64797 and 64798, respectively.*

You're also right about moving *HOTKEY* up in memory.

The "killer" MERGE *is a modification of someone else's (I can't recall whose) idea. Like you, I've learned from studying, adapting and refining other people's ideas. I wrote* HOTKEY *in it's present form so others could more easily study it.*

You're also right about moving HOTKEY *upward in memory. You can't always predict where it will "live," and some locations would cause certain bytes in* HOTKEY*'s code to have values of zero (null) or 13 (carriage return). This would confuse the operating system, making it lose track of your files. By moving* HOTKEY, *you can find a spot where nulls and* CR*'s won't be created and the gods won't be angered.*

I'm afraid there's insufficient space here to explain how to add commands, how to pack machine code into BASIC *programs, etc. It would make a good series of articles, and I'll try to do some in the future. Meantime, since much of* HOTKEY *is based on David Sumner's* SUPERA, *you might learn a lot by disassembling that program. It's available from Ultrasoft Innovations.*

-MN

GIMME A BREAK—TRULY

Last month, reader Jim McGill sought a means of sending a true break from TELCOM *on the Model 100, for use in communicating with some mainframe systems. I've found two pertinent files in CompuServe's Model 100 Forum. The files,* BREAK1.DO *and* BREAK2.DO, *written by Greg Limes, offer two methods of producing a true break.*

BREAK1 *is a clever software approach, one of instantaneously "downshifting" the baud rate to a slow 75 bps, sending a NUL character (to act as the break), then "upshifting" back to the original rate. Greg shows this one-line* BASIC *patch to the* SXM XMODEM *program (also on the Forum) that makes the* F7 *key perform that operation:* 64 CALL 28277, 0, 256: PRINT #2, CHR$ (0) ;: CALL 28277, 0, 256* ((PEEK (-2469)+6) MOD26): RETURN

This code, says Greg, can be modified to work with other programs. The strange code enclosed in parentheses is to ensure that it works with both internal and external modems.

File BREAK2 *describes a hardware method in which you install a switch to make the modem send a stream of NUL's while the switch is pressed. Someone familiar with electronics can make the modification in about half an hour.*

If you need true break capability in TELCOM, *I suggest you read these files. I found the software method to be somewhat inconsistent, especially when using the Model 100's built-in modem. It often wouldn't return to the normal baud rate. So I wrote my own routine which so far works quickly and reliably. It's presently 40 bytes of machine language, but I'll create a* BASIC *program to install it and and make it easy to use. Then I'll publish it in a future article.*

-MN

❑

Database with *MSPLAN*

The Tandy 200 is a unique machine. It has all the good features of the Model 100, plus a variety of enhancements. When asked to name the best feature of the Tandy 200 (compared to the Model 100), most Tandy 200 users would say, "The LCD screen."

I agree that the Tandy 200 has a larger and faster LCD than the Model 100, but for me, the included spreadsheet *MSPLAN* was the best new feature. That's a personal matter. I happened to be in need of a spreadsheet, and this subset of *MultiPlan* was more than sufficient to meet my needs.

Although my needs for a spreadsheet were for *number crunching* such as tax analysis and investment projections, I found that *MSPLAN* handled ASCII text nicely. By correlating text data to numerical values, I could have the LCD rapidly update to reflect the text associated with those values.

You could enter a part number for an inventory database or an account number for a customer list into one cell of *MSPLAN*. Then the remainder of the screen would update instantly to display quantity, price, and the like, or names, addresses and phone numbers.

MSPLAN *can automatically fill in the description, price, tax, and total. Just print the screen to get a printed invoice.*

You could format an *MSPLAN* screen in the form of an invoice, where you merely enter a part number into a particular cell. *MSPLAN* can automatically fill in the description, price, tax, and total. You just print the screen to get a printed invoice.

I'm presenting the following example just to get you thinking. Some may find it useful the way it is, but chances are pretty good that you will want to customize the display format for a more personal application.

A SAMPLE SPREADSHEET

The following is a detailed, step-by-step sequence of instructions for creating a database with *MSPLAN*. I have also included a Symbolic Link (*SYLK*) listing so you can double check for typos or other errors.

If you prefer, you can copy the *SYLK* listing to *INVOIC.DO* text file and load it directly into *MSPLAN*.

The first step is to place the cursor over *MSPLAN* and press *ENTER*. You should get a filename prompt. If you do not, the *MP* workspace may be in use, and you must go to *BASIC* and *CLEAR 256,MAXRAM* to free the workspace. *MSPLAN* needs about 4K of free RAM, so if you have less than 4K available, you

```
  |    7 |      8 |      9 |     10 |     11 |   12
 1| part #        1        2        3
 2|   desc  Widget   Gadget   Whatsi
 3|  price     3.75      4.5     5.25
 4|  desc2                          t
 5|
 6|
```

Figure 1. The database used with the INVOICE. *Type this into* MSPLAN. *Then you can type merely the part number (row 1) and the program automatically looks up the rest of the information about the part (rows 2 and on).*

```
  |    1 |      2 |      3 |      4 |      5 |      6
 1| The Great American                        INVOICE
 2| Widget Company
 3| 192 Main St.                          Date 071788
 4| Sunrise FL 33351
 5| ------------------------------------------------------
 6| item desc                    qty      each      price
 7| ------------------------------------------------------
 8|
 9|
10|
11| ------------------------------------------------------
12|
13|                                Tax
14|                                          ----------
15|                                Total
```

Figure 2. The invoice template. Copy this into an MSPLAN *file called* INVOICE *to create your own invoicing spreadsheet that takes care of most of the calculations and descriptions.*

```
  |    1 |      2 |      3 |      4 |      5 |      6
 1| The Great American                        INVOICE
 2| Widget Company
 3| 192 Main St.                          Date 071788
 4| Sunrise FL 33351
 5| ------------------------------------------------------
 6| itemdesc                     qty      each      price
 7| ------------------------------------------------------
 8| 3       Whatsit              4      5.25      21.00
 9| 2       Gadget               2      4.50       9.00
10|
11| ------------------------------------------------------
12|                                                 30.00
13|                                        Tax       1.80
14|                                                 -----
15|                                        Total    31.80
```

Figure 3. The final screen, once you have entered your data, such as part number and quantity sold.

will have to save some files to another RAM bank or an external storage device.

At the filename prompt, enter the name of this sample worksheet: *INVOIC* and press *ENTER*. Now you can load the *SYLK* file by pressing *F7*, *F2*, and *F3*. Type *INVOIC* and *ENTER*, and the *SYLK* file will load. This spreadsheet appears on the menu as *INVOIC.CO*, and once you create it, you can access it directly by placing the cursor over *INVOIC.CO* and pressing *ENTER*.

```
ID;PMP
F;DG2R6
B;Y15;X10
C;Y1;X1;K"The Gr"
C;X2;K"eat Am"
C;X3;K"erican"
C;X5;K"I"
C;X6;K"NVOICE"
C;X7;K"item"
C;X8;K1
C;X9;K2
C;X10;K3
C;Y2;X1;K"Widget"
C;X2;K" Compa"
C;X3;K"ny   "
C;X7;K"desc"
C;X8;K"Widget"
C;X9;K"Gadget"
C;X10;K"Whatsi"
C;Y3;X1;K"192 Ma"
C;X2;K"in St."
C;X5;K"Date 0"
C;X6;K72188
C;X7;K"each"
C;X8;K3.75
C;X9;K4.5
C;X10;K5.25
C;Y4;X1;K"Sun Ci"
C;X2;K"ty, FL"
C;X3;K" 33351"
C;X7;K"r"
C;X8;K" "
C;X9;K" "
C;X10;K"t"
C;Y5;X1;K"———";G
C;X2;S;R5;C1
C;X3;S
C;X4;S
C;X5;S
C;X6;S
C;Y7;X1;S
C;X2;S
C;X3;S
C;X4;S
C;X5;S
C;X6;S
C;Y11;X1;S
C;X2;S
C;X3;S
C;X4;S
C;X5;S
F;FF2R
C;X6;S
F;FF2R
C;Y14;S
F;FF2R
C;Y6;X1;K"item  "
C;X2;K"desc  "
C;X4;K" qty  "
C;X5;K"each "
C;X6;K"price"
C;Y8;X1;K3;G
F;FG2C
C;X2;ELOOKUP(RC[-
   1],R1C8:R2C12);D;K"Whatsi"
C;Y9;S;R8;C2;K"Gadget"
C;Y8;X3;ELOOKUP(RC[-
   2],R1C8:R4C12);D;K"t"
F;FG2L
C;Y9;S;C3;K" "
F;FG2L
C;Y8;X4;K4
F;FG2C
C;X5;ELOOKUP(RC[-
   4],R1C8:R3C12);D;K5.25
F;FF2R
C;Y9;S;C5;K4.5
F;FF2R
C;Y8;X6;ERC[-1]*RC[-
   2];D;K21
F;FF2R
C;Y9;S;C6;K9
F;FF2R
C;X1;K2
F;FG2C
C;X4;K2
F;FG2C
F;Y10;X1;FG2C
F;X3;FG2L
F;X4;FG2C
F;X5;FF2R
F;X6;FF2R
F;Y12;X5;FF2R
C;X6;ESUM(R[-4]C:R[-
   2]C);K30
F;FF2R
C;Y13;X5;K"Tax  "
F;FF2R
C;X6;E0.06*R[-1]C;K1.8
F;FF2R
F;Y14;X5;FF2R
C;Y15;K"Total "
F;FF2R
C;X6;ER[-3]C+R[-2]C;K31.8
F;FF2R
E
```

Listing 1. The Symbolic Link (SYLK) file INVOIC.DO. *You can use this listing to create a ready-made spreadsheet automatically (indented lines are continuations of previous lines).*

The Great American Widget Company 192 Main St. Sunrise FL 33351			INVOICE Date 071788	
item	desc	qty	each	price
3	Whatsit	4	5.25	21.00
2	Gadget	2	4.50	9.00
				30.00
			Tax	1.80
			Total	31.80

Figure 4. The MSPLAN *printout.*

By this point, you no longer need the *SYLK* file (*INVOIC.DO*), so you can delete it from RAM. You can always re-create it later from the *.CO* file, if necessary.

If you wish to create *INVOIC.CO* from *MSPLAN*, first set the column width to 6, by pressing *F4*, *F3*, then *6* and *ENTER*. With *R1C1* in the upper left corner, copy the invoice template (Figure 2) into the indicated cells. Remember now that you've set the cells to display only six characters.

By this point, you no longer need the *SYLK* file.

Next, bring *R1C7* to the upper left corner and copy the sample database (Figure 1) into the indicated cells (be sure that *R4C8* an *R4C9* contain spaces; the cells are not empty). When done, press *CTRL-W* to bring the cursor "home" and enter the following formulas:

R15C6=R[-3]C+R[-2]C
R13C6=R[-1]C.06*
R12C6=SUM(R[-4]C:R[-2]C)
R8C2=LOOKUP(RC[-1],R1C8:R2C12)
R8C3=LOOKUP(RC[-2],R1C8:R4C12)
R8C5=LOOKUP(RC[-4],R1C8:R3C12)
*R8C6=RC[-2]*RC[-1]*

The sample database supports item numbers 1, 2, and 3. Enter a *1*, *2*, or *3* in cell *R8C1*. Now enter a "quantity" in cell *R8C4*. The screen should update with each entry. To add another line, "copy down" from *R8C1:R8C6* to *R9C1* and enter the proper "item" and "quantity." To erase a line, press *F2* (blank) and *R* plus *ENTER* to blank the current row.

For a formatted output, format block *R8C5:R15C6* for "fixed" display (two decimal places). This use of *MSPLAN*'s *LOOKUP* function should spark a few ideas.

-Paul Globman

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March			OUT		NOT PUBLISHED	
April		OUT				
May		OUT				
June		OUT				
July		OUT		OUT		
August						NOT PUBLISHED
September	Premier Issue					
October		OUT		NOT PUBLISHED		
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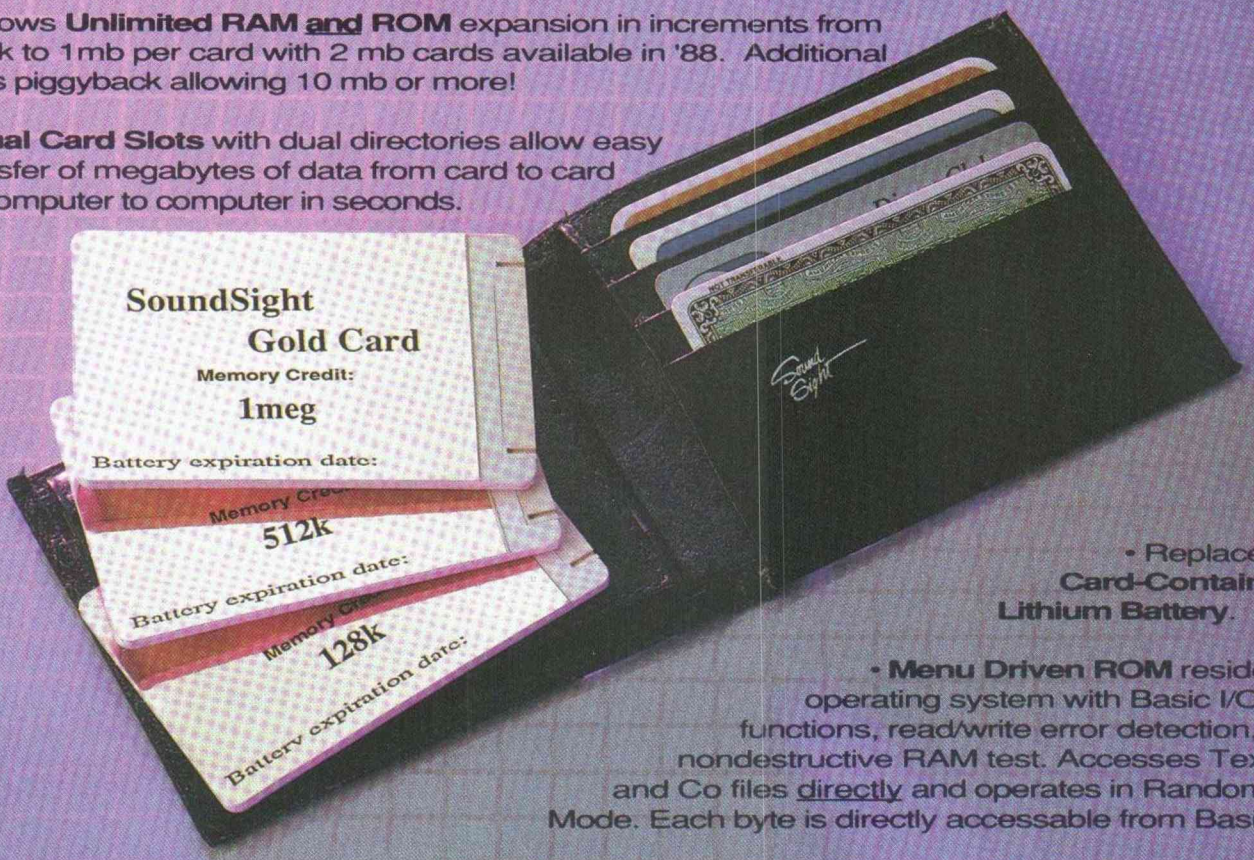

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